Environment Canada Environnement Canada

PLANNING FOR A SUSTAINABLE FUTURE: A FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY FOR CANADA

2013–2016

Sustainable Development Office
Environment Canada

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Message from the Minister

I am pleased to present to Canadians *Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2013–2016*. As Canada's second Federal Sustainable Development Strategy, it builds on progress already achieved, further advancing our objectives of making environmental decision making more transparent and accountable and ensuring Canada is on a path to environmental sustainability.

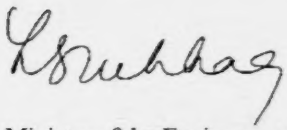
In 2010, the government took a decisive step toward greater transparency and accountability by tabling Canada's first Federal Sustainable Development Strategy. It marked the beginning of a new sustainable development approach for the Government of Canada, making three key improvements over what was done in the past. It provided a whole-of-government view of federal actions to achieve environmental sustainability, linked sustainable development with core federal planning and reporting processes, and provided effective measurement, monitoring and reporting systems to ensure Canadians have the information they need to track the government's environmental progress.

The second three-year Federal Sustainable Development Strategy builds on past achievements, providing long-term goals, medium-term targets, and concrete actions in four priority themes of importance to the government and Canadians: Addressing Climate Change and Air Quality, Maintaining Water Quality and Availability, Protecting Nature and Canadians, and Shrinking the Environmental Footprint – Beginning with Government.

Canada's second Federal Sustainable Development Strategy updates and expands on what the first strategy presented in 2010. It reflects current policies and programs such as the Air Quality Management System and the government's partnership with Alberta to conduct Joint Oil Sands Monitoring. It reflects federal actions to increase Canada's resilience to the unavoidable impacts of climate change by including a target on climate change adaptation, an issue of particular significance to Canada's North. It also includes a new target on sustainable agriculture, underscoring the importance of Canada's working landscapes for protecting biodiversity and promoting sustainable development.

Stakeholder input has played an important role in shaping the 2013-16 Federal Sustainable Development Strategy. Canadians responded to the release of the strategy's public consultation draft with valuable suggestions for strengthening it as well as comments reaffirming the importance of the environmental sustainability issues that we face. This final version of the strategy reflects public and stakeholder input by, for example, providing clearer, more measurable and more specific targets; providing more comprehensive coverage of environmental issues and government priorities; and clarifying the social and economic dimensions of the strategy's environmental sustainability goals and targets.

Significant progress has been made since the 2010-13 Federal Sustainable Development Strategy was released. Going forward, the government is committed to continuous improvement in our efforts to achieve environmental sustainability. Rigorous monitoring and reporting of progress over the course of this three-year cycle, along with feedback from Canadians, will drive further improvements in the next Federal Sustainable Development Strategy and beyond.



Minister of the Environment,
Minister of the Canadian Northern Economic Development Agency and
Minister for the Arctic Council

Executive Summary

The second cycle of the Federal Sustainable Development Strategy (FSDS) fulfills the requirement of the *Federal Sustainable Development Act* to develop an FSDS every three years that makes environmental decision making more transparent and accountable to Parliament. It builds on three key improvements made in the first cycle, which was tabled in Parliament in October 2010:

1. An integrated, whole-of-government picture of actions and results to achieve environmental sustainability;
2. A link between sustainable development planning and reporting and the government's core planning and reporting processes; and
3. Effective measurement, monitoring and reporting in order to track and report on progress to Canadians.

Significant progress has been made over the course of the first cycle. With the tabling of the 2010-13 FSDS, Canadians had for the first time a comprehensive picture of actions across the federal government that contribute to environmental sustainability. Since 2011, departments and agencies have produced annual Departmental Sustainable Development Strategies integrated into their core planning and reporting processes. The government has also demonstrated its commitment to measurement, monitoring and reporting by issuing two progress reports and expanding the suite of environmental sustainability indicators that support FSDS reporting.

In accordance with the strategy's "Plan, Do, Check, Improve" system of performance management, the government is building on progress to date to further advance the transparency and accountability of environmental decision making. These advances are informed by feedback received on both the first and draft second cycles of the strategy. Key steps for the second cycle include:

- Building the whole-of-government picture by incorporating a broader range of federal government actions that support the FSDS goals and targets;
- Enhancing the link to core federal planning and reporting through ongoing alignment between the FSDS and federal departments' Program Alignment Architectures; and
- Expanding the Canadian Environmental Sustainability Indicators suite to ensure that indicators are available to measure progress on all FSDS goals and targets.

In February 2013, a consultation draft of the 2013-16 FSDS was released for public consultation. The final 2013-16 FSDS integrates Commissioner of the Environment and Sustainable Development and stakeholder comments received during the consultation period by improving targets and implementation strategies to enhance their specificity, measurability, and achievability; improving the strategy's coverage of environmental issues and priorities such as Responsible Resource Development; providing more detail on how the federal government collaborates with others to achieve results; clarifying language and better defining key ideas; and elaborating economic and social dimensions of the strategy's environmental sustainability themes.

Through including environmental sustainability goals and targets in strategic environmental assessments and continuing to integrate environmental performance considerations into the procurement of goods and services, the second cycle of the FSDS will also continue to support informed and integrated decision making across government. Further development of the government's sustainable development approach will continue in future FSDS cycles.

Like the first cycle, the second cycle of the FSDS includes four priority themes:

I. Addressing Climate Change and Air Quality;

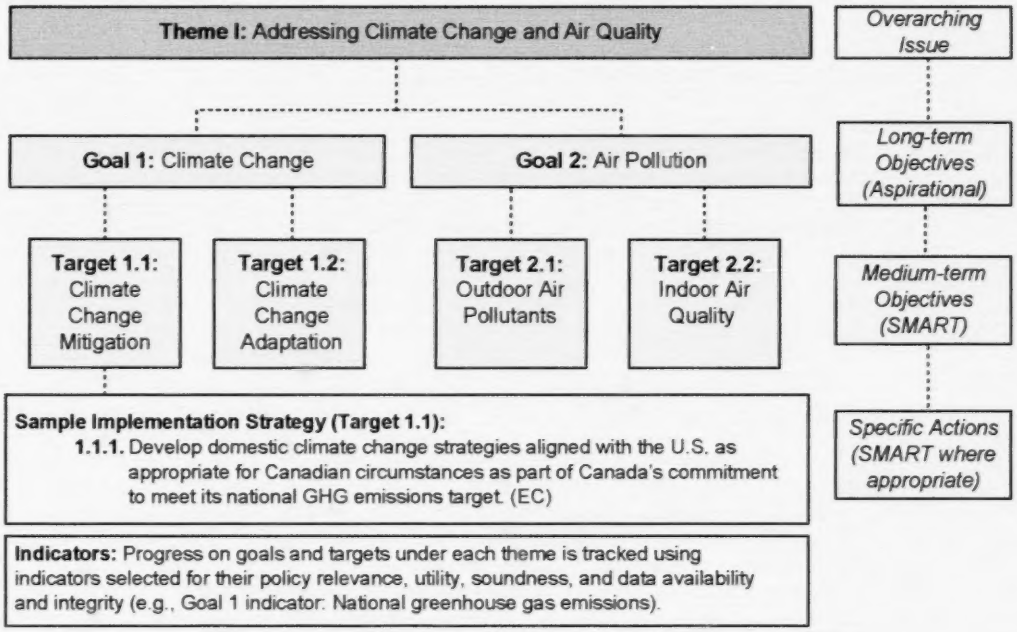
II. Maintaining Water Quality and Availability;

III. Protecting Nature and Canadians; and

IV. Shrinking the Environmental Footprint – Beginning with Government.

Themes are structured according to Figure 1 and include aspirational, long term goals, medium term targets that are specific, measurable, achievable, relevant, and time-bound, and concrete implementation strategies (actions to achieve the targets). The 2013-16 FSDS includes eight goals across the four themes, supported by thirty-four targets. In total, the strategy includes 225 implementation strategies, which are programs and activities undertaken by departments across the federal government.

Figure 1 – Theme Structure: Goals, Targets and Implementation Strategies

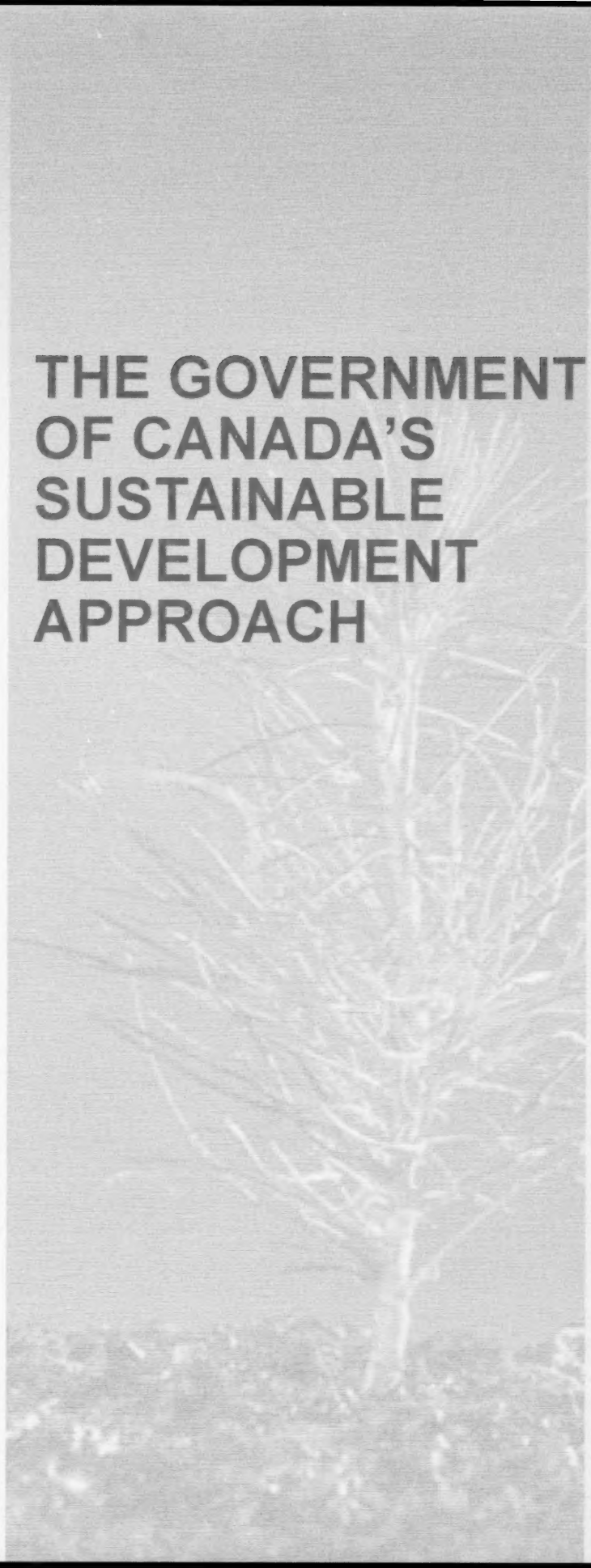

Theme I: Addressing Climate Change and Air Quality
Overarching Issue
Goal 1: Climate Change
Goal 2: Air Pollution
Long-term Objectives (Aspirational)
Target 1.1: Climate Change Mitigation
Target 1.2: Climate Change Adaptation
Target 2.1: Outdoor Air Pollutants
Target 2.2: Indoor Air Quality
Medium-term Objectives (SMART)
Sample Implementation Strategy (Target 1.1):
1.1.1. Develop domestic climate change strategies aligned with the U.S. as appropriate for Canadian circumstances as part of Canada's commitment to meet its national GHG emissions target. (EC)
Specific Actions (SMART where appropriate)
Indicators: Progress on goals and targets under each theme is tracked using indicators selected for their policy relevance, utility, soundness, and data availability and integrity (e.g., Goal 1 indicator: National greenhouse gas emissions).

Three of the four themes introduced in the first cycle are maintained, while Theme III has been broadened to include actions to protect the health of Canadians, by including a target on chemicals management (consolidating two targets that previously appeared in Themes I and II).

The strategy provides a detailed description of how the federal government is taking action on each of the four themes. While recognizing that provinces and territories, Aboriginal peoples, industry, and others also contribute to achieving environmental sustainability outcomes, the FSDS includes only federal actions to advance the goals and targets.

One of the most significant initiatives in this regard is the Government's Plan for Responsible Resource Development, which was designed to promote sustainable economic growth while introducing significant new measures to ensure environmental protection, and supporting social development through engagement with Aboriginal communities and all Canadians who benefit from such opportunities.

THE GOVERNMENT OF CANADA'S SUSTAINABLE DEVELOPMENT APPROACH



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Transparency and Sustainable Development

In 2008, the Government of Canada took an important step on the path towards a sustainable future with the passage of the *Federal Sustainable Development Act*. The Act's purpose is "to provide the legal framework for developing and implementing a Federal Sustainable Development Strategy (FSDS) that will make environmental decision-making more transparent and accountable to Parliament".

Passing the Act signalled a change in how the Government of Canada would fulfill its commitment to sustainable development. The Act requires one comprehensive FSDS representing all of government, with Departmental Sustainable Development Strategies (DSDSs) contributing to its objectives. The first cycle of the FSDS, covering the period 2010–13, was tabled in Parliament on October 6, 2010. It provided three key improvements over previous federal sustainable development approaches:

1. An integrated, whole-of-government picture of actions and results to achieve environmental sustainability;
2. A link between sustainable development planning and reporting and the government's core planning and reporting processes; and
3. Effective measurement, monitoring and reporting in order to track and report on progress to Canadians.

The first cycle also began the process of integrating FSDS goals and targets into strategic environmental assessments (SEAs), enabling the strategy to support decision makers in becoming aware of the potential impact of federal decision making on the environmental issues that matter most to the Government of Canada and to Canadians.

Key Principles that Guide Us All

The *Federal Sustainable Development Act* defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Act acknowledges the foundational importance of the precautionary principle in achieving sustainable development. This principle holds that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. The FSDS supports and reflects the federal government's commitment to this principle.

The Act also states that "the Government of Canada accepts the basic principle that sustainable development is based on an ecologically efficient use of natural, social and economic resources." The government's approach to sustainable development therefore reflects a commitment to minimizing the environmental impacts of its policies and operations as well as maximizing the efficient use of natural resources and other goods and services.

What We Have Done to Date

Much has been accomplished since tabling the first FSDS in 2010. The FSDS presents a whole-of-government view of environmental priorities at the federal level, with goals, targets and implementation strategies across 33 departments and agencies. With the tabling of the 2010-13 FSDS, Canadians had for the first time, in one place, comprehensive information on activities across the federal government that contribute to environmental sustainability. This view has helped bring coherence both to Canada's domestic policy and to its engagement with international partners on sustainable development. It has also provided departments and agencies with policy context for their sustainable development and other initiatives.

Much of the success to date in bringing sustainable development issues into the government's overall decision making comes as a result of incorporating the FSDS into the government's core planning and reporting processes. During the first three-year FSDS cycle, annual Reports on Plans and Priorities and the websites of each federal department and agency incorporated elements of the FSDS. The FSDS also integrated Clean Air Agenda (CAA) reporting into annual DSDSs, and highlights CAA activities in FSDS progress reporting.

To achieve the government's commitment to effective measurement, monitoring and reporting in order to track and report on progress to Canadians, two FSDS progress reports have been produced. The 2011 FSDS Progress Report focused on progress made on setting up the systems needed to implement the FSDS. It also laid the foundation for future reporting by including indicators that would be used to track progress of the 2010-13 FSDS.

The 2012 FSDS Progress Report highlights the progress of 27 departments and agencies towards the goals and targets set out in the 2010-13 FSDS. It provides Parliamentarians and Canadians with a whole-of-government picture of the contributions of the federal government to environmental sustainability. As the first substantive report on the first cycle of the FSDS, it establishes the starting point for future cycles of the FSDS and progress reports. The Canadian Environmental Sustainability Indicators (CESI) program, now a permanent feature of environmental reporting, significantly expanded its scope to provide more than 40 indicators that measure progress towards the goals and targets of the FSDS.

One example of an area that uses CESI is Sustainable Forest Management. The Sustainability of Timber Harvest indicator, maintained by the Canadian Forest Service and reported by CESI, portrays the annual harvest of timber relative to the level of harvest that is deemed to be sustainable. The indicator provides a national context for forest managers planning for harvest levels that will not affect the long-term sustainability of the forest resource. Sustainable forest management means ensuring that forests provide a broad range of goods and services over the long term.

Figure 2 outlines the Government of Canada's progress to date on sustainable development strategies.

Working Together

Federal actions to achieve environmental sustainability are complemented by private sector initiatives that are realizing synergies between the environment and the economy. For example, Canada's Oil Sands Innovation Alliance brings companies together to accelerate innovation and improve environmental performance through collaboration. Members of the Forest Products Association of Canada have their sustainable forest management practices certified by third-party authorities, which benefits Canada's ecosystems as well as the reputation of Canada's forest sector in international markets.

The federal actions found in this FSDS also complement initiatives by other Canadian jurisdictions. Recognizing that responsibility for environmental sustainability is shared among the federal, provincial and territorial governments, the FSDS focuses specifically on federal actions towards national environmental outcomes, while acknowledging that other governments also contribute significantly to their achievement.

Individual Canadians also have a role to play in achieving environmental sustainability objectives. For example, individual choices to use lower-emission modes of transportation more often, install energy- and water-saving appliances, reduce household pesticide and fertilizer use, and enjoy protected areas responsibly can contribute to achieving FSDS goals and targets.

The continued importance of sustainable development

Sustainable development remains an important concept in policy discussion within Canada and around the world. It also continues to evolve – notably, towards greater recognition of synergies between environmental and economic sustainability and towards recognition of the value of natural capital in underpinning economic and social prosperity, both for the present and into the future.

Interconnections between the environment and the economy are evident in the federal government's efforts to support sustainable economic growth and responsible resource development – for example, by expanding Canada's international trade. The FSDS is helping to advance Canada's international trade agenda by providing a comprehensive expression of Canada's commitments to the environment and sustainable development to our trading partners. It thereby supports discussions in multilateral, bilateral and regional trade and investment negotiations that ensure economic growth, protection and conservation of the environment are mutually supportive.

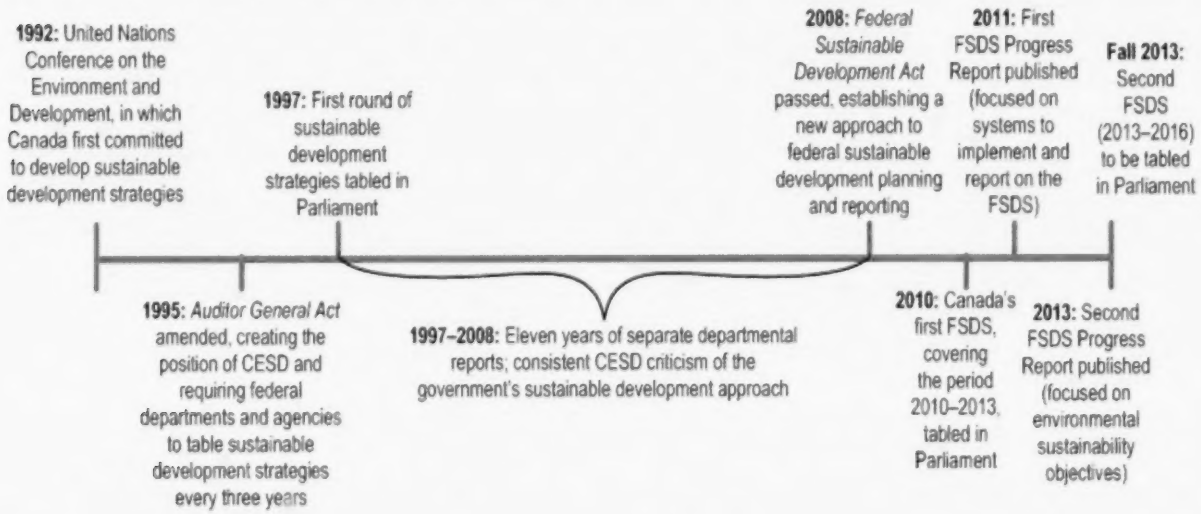
A number of FSDS targets and implementation strategies reflect valuing natural capital to ensure that it can support economic and social development in the future, thereby addressing the needs of future generations. Activities can be found throughout the 2013-16 FSDS that reflect valuing natural capital and include fisheries and aquaculture (Targets 5.1 and 5.2), forestry (Target 5.3, Implementation Strategy 1.1.57), agriculture (Targets 3.10 and 5.4), policy analysis (Implementation Strategies 1.1.14 and 2.1.16), efficient resource use (Implementation Strategies 1.1.6 and 2.1.1), beneficial uses of bodies of water (Targets 3.3, 3.5, and 3.7), species and land conservation (Targets 4.1, 4.2, 4.3 and 4.5, Implementation Strategies 4.3.8 and 4.3.9).

FSDS targets and implementation strategies also directly support the government's responsible resource development agenda. Responsible resource development – a key pillar of Economic Action Plan 2012 – will ensure Canada's regulatory regime is among the most efficient and competitive in the world, while ensuring strong environmental protection and enhanced consultations with Aboriginal Canadians. By, for example, introducing new compliance and enforcement tools, responsible resource development strives to ensure that natural resources can be developed sustainably, meeting economic, social, and above all, environmental objectives. Building on the responsible resource development foundation, the government has steadily deepened and expanded its efforts to protect the environment and is advancing world class pipeline and marine safety regimes (see Implementation Strategies 4.7.6 and 3.8.3).

Responsible resource development is supported by recent changes to environmental assessment resulting from the implementation of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). Under CEAA 2012, environmental assessments are completed in a timely manner, and efforts focus on projects that have greater potential for significant adverse environmental effects. CEAA 2012 also strengthens environmental protection and provides tools to reduce duplication between the federal and provincial environmental assessment processes, contributing to the goal of creating a modern, effective and efficient regulatory system for major projects. It also allows for greater use of regional environmental assessments to assess and address cumulative effects.

Further information on what the government is doing to promote responsible resource development can be found in Canada's Economic Action Plan.

Figure 2 – Sustainable Development Strategies Timeline


1992: United Nations Conference on the Environment and Development, in which Canada first committed to develop sustainable development strategies
1995: *Auditor General Act* amended, creating the position of CESD and requiring federal departments and agencies to table sustainable development strategies every three years
1997: First round of sustainable development strategies tabled in Parliament
1997–2008: Eleven years of separate departmental reports; consistent CESD criticism of the government's sustainable development approach
2008: *Federal Sustainable Development Act* passed, establishing a new approach to federal sustainable development planning and reporting
2010: Canada's first FSDS, covering the period 2010–2013, tabled in Parliament
2011: First FSDS Progress Report published (focused on systems to implement and report on the FSDS)
2013: Second FSDS Progress Report published (focused on environmental sustainability objectives)
Fall 2013: Second FSDS (2013–2016) to be tabled in Parliament

Strategic environmental assessment (SEA) and decision making

SEA is a key analytical tool used by the federal government to evaluate the potential environmental effects of proposed policies, plans and programs.

In accordance with the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, it is expected that an SEA be conducted for every proposal submitted to an individual minister or Cabinet for approval, if important environmental effects (including effects on the FSDS goals and targets) are expected to result from its implementation. When conducting an SEA, departments and agencies assess whether the potential environmental effects of a proposal are important based on considerations such as frequency and duration of the effect; location and magnitude; timing; risk (for example, to human health); irreversibility; and the potential for cumulative effects.

SEA seeks to incorporate environmental considerations into the development of policies, plans and programs on an equal basis with economic or social considerations, in order for decisions to be made in support of sustainable development. Departments and agencies must prepare a public statement of environmental effects when a detailed assessment of environmental effects has been conducted through SEA.

Since the establishment of the first FSDS in 2010, SEAs conducted by federal departments and agencies have been required to consider how proposals could affect the achievement of the FSDS goals and targets. The requirement to conduct SEAs applies to all federal departments and agencies. Therefore, considering the FSDS goals and targets in SEA enables the government's environmental sustainability priorities to inform social and economic decision making.

SEA differs from project-level environmental assessment under the *Canadian Environmental Assessment Act, 2012* in that it applies to policies, plans and programs rather than designated projects defined in the regulations associated with CEAA 2012. However, SEA and project-level environmental assessment are complementary in that both processes support informed decision making for sustainable development.

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Plan, Do, Check, Improve

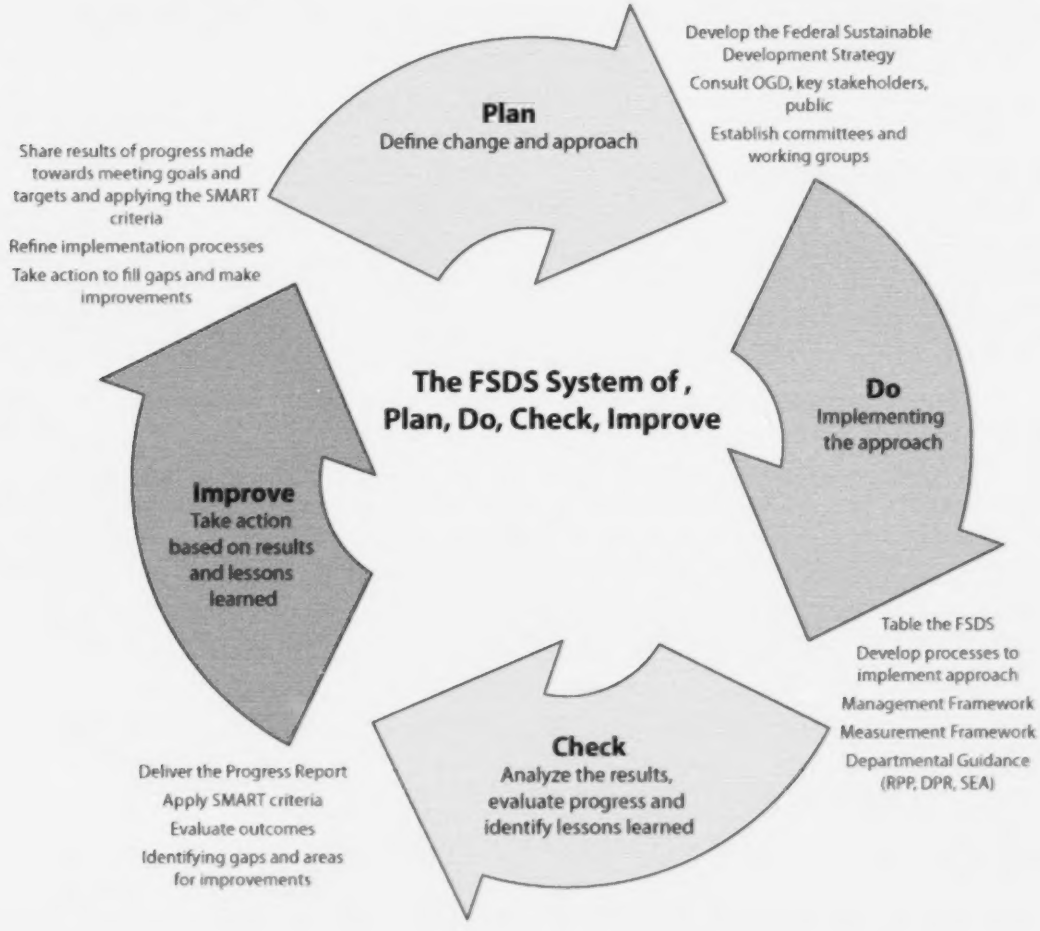
The three-year cycle of the FSDS is grounded in the commitment to identify opportunities to improve subsequent strategies with the aim of making environmental decision making more transparent and accountable to Parliament.

The three-year cycle establishes a system of "Plan, Do, Check, Improve" that supports change over time. Successive strategies will review gaps and reflect policy changes supported by improved transparency. A great deal has already been accomplished, and work will continue in this and future cycles of the FSDS.

The second three-year cycle of the FSDS, which covers the period 2013-16, provides a key opportunity to build on the three key improvements made in the first cycle and continue to improve the transparency and accountability of environmental decision making.

A best practice in sustainable development is public engagement, which is integral to the FSDS approach and essential to the success of the "Plan, Do, Check, Improve" system.

Figure 3 – The "Plan, Do, Check, Improve" Model


Plan
Define change and approach
Develop the Federal Sustainable Development Strategy
Consult OGD, key stakeholders, public
Establish committees and working groups
Do
Implementing the approach
Table the FSDS
Develop processes to implement approach
Management Framework
Measurement Framework
Departmental Guidance (RPP, DPR, SEA)
Check
Analyze the results, evaluate progress and identify lessons learned
Deliver the Progress Report
Apply SMART criteria
Evaluate outcomes
Identifying gaps and areas for improvements
Improve
Take action based on results and lessons learned
Share results of progress made towards meeting goals and targets and applying the SMART criteria
Refine implementation processes
Take action to fill gaps and make improvements
The FSDS System of , Plan, Do, Check, Improve

Stakeholder Feedback and How It Was Used

In recognition of the importance of consultation, and in accordance with the Act, development of the final 2013-16 FSDS was informed by a 120-day public consultation period. From February to June, 2013, the government received significant input on the strategy from the Commissioner of the Environment and Sustainable Development (CESD), the Sustainable Development Advisory Council (SDAC), Parliamentarians, provincial and territorial governments, First Nations, municipalities, non-governmental organizations, professional and industry associations, and Canadians. A full consultation synthesis report can be found on Environment Canada's website. This feedback has informed the development and finalization of the 2013-16 FSDS.

Public and stakeholder comments indicated support for the whole-of-government FSDS approach and acknowledged significant improvements since the 2010-13 FSDS. These include adding a target on climate change adaptation; presenting indicators in the strategy; providing a more balanced and effective framing of sustainable development; and better articulating FSDS themes on protecting nature (Theme III) and greening government operations (Theme IV). The final 2013-16 FSDS builds on the strengths noted in stakeholder comments by, for example, expanding the range of departments and agencies that contribute to the strategy and increasing environmental issue coverage.

The following sections identify key comments and observations that have emerged over the course of the first FSDS cycle and in the recent second cycle public consultation period, and summarize how they have influenced the final 2013-16 FSDS.

General comments and advice

In finalizing the 2013-16 FSDS, the government received comments emphasizing the importance of the environment and sustainable development, and on specific environmental issues. Stakeholders and Canadians also provided advice and recommendations for new programs, new policies, scientific research, new collaborations, and other initiatives. Policy advice addressed issues such as climate change adaptation, greenhouse gas emission reduction, air and water quality, nature, and government procurement. While the second strategy continues to reflect existing federal environmental decision making, general comments and advice have been provided to relevant departments and agencies for consideration in future policy and program development.

Improving targets and implementation strategies

In response to comments noting the potential for improvement in the specificity, measurability, and achievability of some FSDS targets, ten targets have been improved by, for example, adding baseline information, quantitative benchmarks, and timelines. Examples include targets on air pollutants (Target 2.1); on-reserve First Nations water and wastewater systems (Target 3.1); Great Lakes Canadian Areas of Concern (Target 3.3); and sustainable aquaculture (Target 5.2).

In addition, a number of implementation strategies have been elaborated more fully to clarify their meaning, add relevant information, and ensure they can be assessed, including Implementation Strategies 1.1.2, 2.1.9 (which now includes an example of a program to advance clean technologies); 3.12.7 (which now includes more information

on federal involvement in domestic and international water boards); and 4.3.4 (which now includes more information on habitat protection).

Improving coverage of environmental issues

In response to gaps noted by stakeholders, the final 2013-16 FSDS includes greater coverage of environmental issues and relevant federal priorities, as well as an expanded whole-of-government picture that includes more federal departments and agencies.

The government has broadened existing FSDS targets and implementation strategies to increase coverage and provide a more complete account of relevant federal actions in several horizontal priorities. For example, since the FSDS 2013-16 Consultation Paper was released in February, the number of federal departments and agencies that have been identified as contributing to the target on environmental disasters, incidents and emergencies has increased from three to twelve. The strategy now also provides a more comprehensive picture of actions on federal contaminated sites (see Implementation Strategies 4.8.1 and 4.8.2).

The 2013-16 FSDS increases the number of departments responsible for implementation strategies in Themes I-III from 17 in the first cycle to 26. This is attributable in part to participation in the FSDS by seven federal organizations not bound by the Act: Statistics Canada (Implementation Strategies 2.2.2, 3.12.5, 4.3.8), National Research Council (Implementation Strategy 2.2.3), Canadian Food Inspection Agency (Implementation Strategies 4.6.2, 4.6.7, 4.6.8, 4.6.9, 4.6.10, 4.6.11), Royal Canadian Mounted Police (Implementation Strategy 4.8.1), Correctional Service of Canada (Implementation Strategy 4.8.1), Standards Council of Canada (Implementation Strategy 1.2.5), and the National Energy Board (Implementation Strategy 4.7.6). The government will continue to promote voluntary participation and ensure all relevant federal actions are reflected in future strategies.

The final 2013-16 FSDS improves the strategy's coverage of issues cited by stakeholders such as health, energy, responsible resource development, environmental assessment, and agriculture. Since the release of the consultation draft, the link between environmental quality and human health has been reinforced in the strategy by expanding Theme III (Protecting Nature and Canadians) to include protecting Canadians' health as well as protecting nature. The strategy now presents a clearer picture of federal action on sustainable energy (including renewable energy, energy efficiency, and clean technology). It also reflects the government's commitment to put in place a comprehensive environmental monitoring program in the oil sands by including two new implementation strategies on this topic (Implementation Strategies 3.12.3 and 4.3.10). The strategy now outlines recent changes to environmental assessment (see Strategic environmental assessment (SEA) and decision-making) and adds more detail on the role of agriculture in environmental sustainability (for example, through protection of riparian areas – see Theme II, and Target 5.4). Finally, the 2013-16 FSDS now identifies implementation strategies that support the government's Responsible Resource Development initiative, a federal priority with strong environmental sustainability dimensions (see "The continued importance of sustainable development" and Implementation Strategies 4.7.6 and 3.8.3).

Recognizing collaboration

In response to comments emphasizing the importance of non-federal actors in achieving environmental results, the 2013-16 FSDS acknowledges the contributions of provincial and territorial governments, Aboriginal

governments, municipalities, industry, international organizations, and Canadians to achieving its goals and targets. To clarify the importance of collaboration, the second strategy includes a section for each of the first three themes giving a brief overview of the roles of others in achieving environmental outcomes.

The strategy also includes multiple implementation strategies that highlight ways in which the federal government is working with other governments and stakeholders to achieve results. Examples include implementation strategies on working collaboratively with provinces, territories and stakeholders to implement the Air Quality Management System (2.1.19), restoring aquatic ecosystems in Lake Simcoe/South-eastern Georgian Bay and Lake Winnipeg (3.6.1 and 3.7.1), providing support to co-operatives (1.1.10), and supporting the development of Aboriginal knowledge and expertise in dealing with species at risk. (4.1.3).

Social and economic dimensions of sustainable development

In response to comments received, the 2013-16 FSDS better incorporates social and economic dimensions while maintaining a focus on environmental decision making. For each of its environmental sustainability themes (Addressing Climate Change and Air Quality; Maintaining Water Quality and Availability; and Protecting Nature and Canadians), the strategy provides information on the social and economic drivers and effects of environmental change as well as on how federal environmental action can result in social and economic benefits (see Themes I-III).

It also includes environmental indicators with social and economic aspects. These include indicators of air-quality related health outcomes (Theme I); drinking water advisories (Theme II); water quality and soil quality agri-environmental performance metrics (Theme II); level of exposure to substances of concern (Theme III); and the extent to which aquaculture is managed under a science-based environmental regulatory frame (Theme III).

The 2013-16 FSDS also continues the government's ongoing efforts to apply the FSDS goals and targets in SEAs to inform decision makers of the potential effects of proposed policies, plans and programs (including those with a social or economic focus) on achieving the government's environmental objectives. Through the ongoing application of the federal Policy on Green Procurement, combined with enhanced targets to reduce the environmental footprint of government operations, the 2013-16 FSDS also continues to integrate environmental considerations into decision making on procuring goods and services.

Communication

In response to comments recommending increased clarity and readability, the second strategy improves communication of environmental issues and priorities by providing or linking to definitions of key terms – for example, sustainable development (see The Government of Canada's Sustainable Development Approach), beneficial use impairment (in relation to Great Lakes Areas of Concern – see Theme II), and sustainable forest management (see Theme III).

Following public consultations for the 2013-16 FSDS, implementation strategy categories have been added under Target 1.1 (Climate Change Mitigation), enabling Canadians to quickly identify implementation strategies related to clean technology and industry, clean transportation, energy efficiency and renewable energy, and international work on climate change.

Where appropriate, implementation strategies have also been revised for clarity – examples include, under Target 2.1 (Outdoor Air Pollutants), Implementation Strategy 2.1.13, which has been revised for wording and readability; and implementation strategies under Target 4.1 (Species at Risk), which have been consolidated to reduce duplication.

Measurability

In response to comments recommending steps to increase measurability (the ability to determine progress on and achievement of the FSDS goals and targets), a number of targets have been revised. These include 3.1 (On-Reserve First Nations Water and Wastewater Systems), which now includes baseline information and specific percentage improvement objectives to be achieved by 2015; and 3.3 (Great Lakes Canadian Areas of Concern), which now specifies the number of Canadian Areas of Concern to be delisted by 2018.

While the 2013-16 FSDS will continue to use environmental outcome indicators to measure progress on the goals and targets, complementary information on departments' and agencies' specific FSDS commitments is available through departmental planning and reporting. Departmental reporting on the second strategy will begin in 2014.

Future considerations

The government is committed to ensuring that each subsequent cycle of the FSDS builds on lessons learned, in keeping with the "Plan, Do, Check, Improve" approach. Accordingly, the government will consider stakeholder comments when planning future cycles.

Future considerations raised during the public consultation period included increasing the number of departments and agencies that contribute to FSDS Themes I-III, strengthening links between human health and the environment, providing financial information in the FSDS, increasing the number of departments systematically tracking integrated decision making, expanding the social and economic aspects of the FSDS, adding more implementation strategies on ecosystem services and protected areas, and obtaining third-party verification of CESI data.

All of these issues will be considered in the development of the 2016-19 FSDS; however, progress on several is already underway. For example, since 2010, departments and agencies have made progress toward aligning their FSDS commitments with their respective Program Alignment Architectures, resulting in improved linkages between sustainable development reporting and core departmental reporting.

ENVIRONMENTAL SUSTAINABILITY PRIORITIES – STRUCTURE AND APPROACH

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Reaffirming Our Priorities

The 2013-16 FSDS includes four priority theme areas:

- **Theme I. Addressing Climate Change and Air Quality;**
- **Theme II. Maintaining Water Quality and Availability;**
- **Theme III. Protecting Nature and Canadians; and**
- **Theme IV. Shrinking the Environmental Footprint – Beginning with Government.**

It retains the overarching structure of goals, targets and implementation strategies that was introduced in the first cycle and aligns with common practice in government sustainability reporting.

The 2012 FSDS Progress Report provides detailed information on actions and achievements within each of these themes during the first cycle, as well as remaining challenges.

Key updates to the four themes between the first and second cycles include:

- Broadening Theme I to include a new target and implementation strategies on climate change adaptation;
- Revising targets under Theme II to better explain their linkages to social and economic effects;
- Broadening Theme III to include actions to protect the health of Canadians, by including a target on chemicals management (consolidating two targets that previously appeared in Themes I and II); expanding the target on environmental disasters, incidents and emergencies to ensure all relevant federal programming is captured; adding a new target on sustainable agriculture; and consolidating two previously separate goals under this theme to demonstrate the interrelationship between wildlife and habitat; and
- Revising the goal structure and updating targets within Theme IV to provide a more complete view of the Government of Canada's environmental footprint and the actions being taken to minimize it.

The Structure of the Federal Sustainable Development Strategy: Goals, Targets and Implementation Strategies

The 2013-16 FSDS sets out one or more goals within each of its four themes. In the second cycle, as in the first, the Government of Canada strives to ensure that FSDS goals:

- Are aspirational;
- Take a long-term view;
- Address important challenges and problems;
- Remain attuned to environmental information, data and indicators;

- Encourage flexibility in the choice of strategies for achievement; and
- Reflect domestic and international priorities and commitments.

Under each goal, one or more targets have been established. FSDS targets are more specific in nature than goals and, to the extent possible, are intended to:

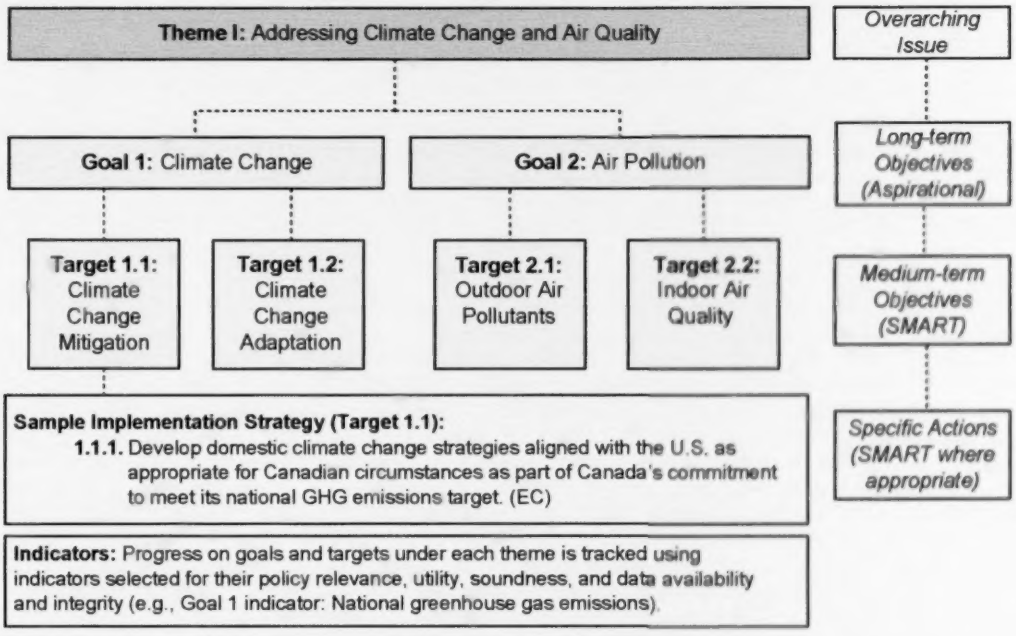
- Meet the SMART criteria:
  - *Specific* – Clearly articulated, well-defined and focused.
  - *Measurable* – Able to determine the degree to which there is completion or attainment.
  - *Achievable* – Realistic and practical; attainable within operational constraints dependent on resource availability, knowledge, and timeframe.
  - *Relevant* – Tied to government priorities and mandate; contributes to a desired outcome in Canadian society, economy or environment.
  - *Time-bound* – Expresses clear deadlines.
- Take a medium-term view;
- Fall within federal jurisdiction and departmental mandates;
- Remain informed by environmental baseline data and indicators;
- Be consistent with Government of Canada priorities; and
- Reflect the precautionary principle.

Each target is supported by implementation strategies – specific federal actions for achieving them. While all implementation strategies support FSDS targets, they may be indirectly rather than directly linked to environmental sustainability outcomes. Implementation strategies should:

- Strive to meet the SMART criteria;
- Take a short-term view;
- Fit within the reporting and planning structures of the federal government;
- Identify resources and activities; and
- Contribute to the related target.

Figure 4 illustrates the structure of FSDS themes, including goals, targets, and implementation strategies and their relationships.

Figure 4 – Theme Structure: Goals, Targets and Implementation Strategies


Theme I: Addressing Climate Change and Air Quality
Overarching Issue
Goal 1: Climate Change
Goal 2: Air Pollution
Long-term Objectives (Aspirational)
Target 1.1: Climate Change Mitigation
Target 1.2: Climate Change Adaptation
Target 2.1: Outdoor Air Pollutants
Target 2.2: Indoor Air Quality
Medium-term Objectives (SMART)
Sample Implementation Strategy (Target 1.1):
1.1.1. Develop domestic climate change strategies aligned with the U.S. as appropriate for Canadian circumstances as part of Canada's commitment to meet its national GHG emissions target. (EC)
Specific Actions (SMART where appropriate)
Indicators: Progress on goals and targets under each theme is tracked using indicators selected for their policy relevance, utility, soundness, and data availability and integrity (e.g., Goal 1 indicator: National greenhouse gas emissions).

To enhance clarity and transparency, the FSDS categorizes implementation strategies according to the nature of the action they represent. Implementation strategies may support FSDS targets in the following ways, corresponding to the types of policy levers available to the Government of Canada:

Leading by example – activities that have a direct impact on federal government operations, or the management of activities by the federal government on behalf of Canadians;

Enabling capacity – activities where the federal government is building the capacity of others to take action, or is making strategic investments in support of goals and targets;

Advancing knowledge and communication – activities related to science, knowledge gathering and sharing, and public education; or

Demanding performance – activities, such as laws and regulations, that require industries or individuals to change behaviours.

While industry, individuals and other stakeholders also contribute to achieving environmental sustainability results, the 2013-16 FSDS reflects only federal contributions to achieving the goals and targets. In some cases, the federal role is direct (for example, regulations), while in others, it involves supporting others (for example, by providing science and information). As a result, some targets aim to achieve environmental outcomes, while others focus on delivering information and completing actions to support other actors (for example, provincial, territorial and First Nations governments and civil society).

Our Approach to Performance Measurement

For the FSDS to support transparency and inform decision making, effective performance measurement is essential. As described in the FSDS Management Framework, the strategy is central to the "Plan" component of the "Plan, Do, Check, Improve" model of sustainable development planning and reporting. The "Check" component of this model relies on performance measurement supported by three key vehicles:

1. FSDS progress reports;
2. Departmental Sustainable Development Strategies; and
3. The Canadian Environmental Sustainability Indicators (CESI).

FSDS Progress Reports

The *Federal Sustainable Development Act* requires that at least once every three years, the government table a report on its progress in implementing the FSDS, including progress toward achieving the strategy's goals and targets. The 2012 FSDS Progress Report, the first to provide a whole-of-government view of results under the 2010-13 FSDS, includes up-to-date environmental scientific and performance information supported by indicators; highlights government actions that support the goals and targets; and links to the CESI website and to detailed performance information on departmental websites.

FSDS progress reports provide important information on environmental outcomes and the contributions of departments and agencies toward achieving them. There are limits on the extent to which progress on results can be linked directly to specific initiatives. It is important to note that the federal government supports environmental sustainability within the constraints of its jurisdiction and authorities, and that it is often difficult to make direct links between federal actions and particular environmental outcomes.

Departmental Sustainable Development Strategies

Departments and agencies named in the Act are required to develop Departmental Sustainable Development Strategies (DSDSs) that comply with and contribute to the FSDS. DSDSs are linked with core departmental planning and reporting processes. The DSDS provides detailed descriptions of the departmental contributions towards the FSDS, including a department's sustainable development vision, departmental decision making and sustainable development practices, and the implementation strategies identified in the FSDS.

Federal departments and agencies bound by the Act may contribute differently to reaching the goals and targets under Themes I–III, depending on their mandate and specific programming. However, all are required to take appropriate actions and measure results under Theme IV (Shrinking the Environmental Footprint – Beginning with Government). As a result, DSDSs include reporting on common performance measures that support standardized and consistent reporting on this theme across government.

DSDS performance reporting complements whole-of-government FSDS progress reports by providing performance information on departments' and agencies' specific FSDS commitments.

Canadian Environmental Sustainability Indicators

Indicators of environmental sustainability outcomes are used to measure progress on the goals and targets under the first three FSDS themes (Addressing Climate Change and Air Quality; Maintaining Water Quality and Availability; and Protecting Nature and Canadians). These indicators are largely drawn from the CESI program. FSDS indicators are the result of collaboration among federal departments and have been selected according to the following criteria:

- Policy relevance (represents the FSDS goals and targets);
- Utility (meets the needs of decision makers and the public);
- Soundness (provides consistent and solid methodology, comparable over time); and
- Data availability and integrity (uses existing high-quality data with adequate coverage).

Indicators of environmental outcomes have been selected for measuring progress on the FSDS goals and targets in order to provide information that is most relevant to Canadians and policy makers and to communicate what the strategy's goals, targets, and implementation strategies are ultimately intended to achieve or support. Using CESI as the primary basis for measuring performance on the FSDS has a number of advantages. In keeping with the purpose of the Act and the FSDS, CESI was developed to provide transparency, and its online platform makes comprehensive and objective information on environmental trends readily accessible. It is considered an authoritative source for state of the environment indicators and data, providing national-level information, a rigorous methodology that standardizes the data and makes it comparable over time, and linkages to related socio-economic issues and information.

The Canadian Environmental Sustainability Indicators are produced by Environment Canada with the support of other federal departments such as Health Canada, Statistics Canada, Natural Resources Canada, Parks Canada Agency, Transport Canada, and Fisheries and Oceans Canada, along with provincial and territorial governments. The indicator development and production process for CESI includes technical review by program partners, measurement network colleagues and provincial and territorial partners to ensure science and technical validity.

Further information on CESI, including comprehensive explanations of indicator methodologies and indicator data for download, is available through the CESI website and the government's Open Data Portal.

THEME I – ADDRESSING CLIMATE CHANGE AND AIR QUALITY

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Why It Matters

Since the tabling of the first cycle of the FSDS, environmental indicators related to air and climate have shown progress. In recent years, for example, the greenhouse gas (GHG) emissions intensity of the Canadian economy and ambient concentrations of most major air pollutants have decreased. Absolute emissions of GHGs also declined between 2005 and 2011. While the economy grew by 8.4% between 2005 and 2011, GHG emissions decreased by 36 megatonnes, or 4.8%, in that same period. This indicates that Canadian GHG emissions are beginning to become decoupled from economic growth. The indicators also show that further work is still needed to reach Canada's GHG reduction target of 17% below 2005 levels by 2020, as well as to reduce emissions of air pollutants to help achieve some Canadian Ambient Air Quality Standards in certain regions.

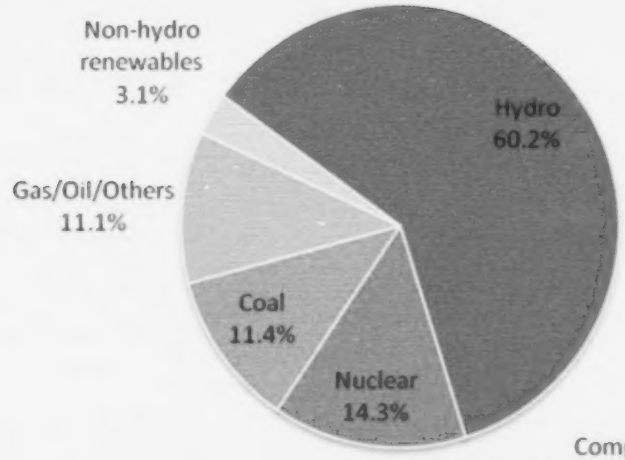
Climate change continues to present a significant challenge to Canada and the world, with implications for the well-being of the environment, the economy and society.

Climate change continues to present a significant challenge to Canada and the world, with implications for the well-being of the environment, the economy and society. Current and potential climate change effects include more frequent instances of severe weather – including storms, floods, droughts and heat waves – as well as risks to coastal ecosystems and communities from rising sea levels. Thawing permafrost also poses a particular risk to infrastructure in Canada's North, where higher-than-average rates of warming have been observed.

These effects have clear implications for the health and safety of Canadians as well as for economic prosperity. Economic impacts of climate change for Canada could include, for example, impacts on the forestry sector from more frequent and severe forest fires; damage to coastal infrastructure from rising sea levels; costs to Canada's health system due to illness from exposure to high temperatures and increased formation of ground-level ozone; and changes to expenditures on tourism and recreation due to compromised ecosystems (Natural Resources Canada, 2007). Reduced water availability due to climate change could also have a negative impact on economic sectors such as agriculture and marine transportation in certain areas of Canada. Urban areas, where the majority of Canadians live, are particularly vulnerable to climate change impacts related to public health (for example, greater health risks from heat waves due to the urban heat island effect), electricity generation and distribution systems, transportation systems, and municipal water supply (Clean Air Partnership, 2007).

Over the period 1990–2011, the most important sources of Canadian GHG emissions were transportation; production and processing of oil and gas; and electricity generation (Environment Canada, 2013). These sectors affect the lives of nearly every Canadian. However, while electricity generation remains a significant contributor to Canada's GHG emissions, a large majority of Canada's electricity comes from low- and non-emitting sources (including 60.2% from hydroelectricity, 14.3% from nuclear, and 3.1% from non-hydro renewables – see Figure 5). The economic development opportunities associated with energy generation in the territories consider benefits from both oil and gas as well as from renewable power generation including wind, solar, geothermal and hydro capacity.

Figure 5 – Electricity Generation in Canada (2011)



Compiled by NRCan, from Statistics Canada #57-003 and #57-202

Outdoor air quality also has a significant influence on the environment, human health and Canada's economy. Exposure to ambient air pollutants can increase the risk of illnesses such as asthma, lung cancer and cardiovascular disease, which can in turn have economic impacts such as increased health care costs (for example, due to higher incidence of doctor visits and hospital admissions) and lower productivity (for example, due to more frequent sick days among workers) (Environment Canada, 2012).

The development and deployment of clean technologies can contribute to addressing GHG and air quality concerns while providing opportunities for Canadian firms to contribute to supplying fast-growing international demand for such products and increasing the competitiveness of Canadian industry through energy and resource efficiency improvements. In this way, innovative environmental and energy technologies assist in decoupling economic growth from environmental damage, allowing for the consideration of opportunities to simultaneously address both Canada's environmental and economic opportunities.

What Others Are Doing

Action on climate change and air quality is being undertaken at every level of society. Canada is a Party to the United Nations Framework Convention on Climate Change (UNFCCC), which was established in 1992 to consider how to limit climate change and adapt to unavoidable impacts. Bilaterally, Canada and the U.S. have a long history of cooperation on transboundary air quality issues under the Canada-U.S. Air Quality Agreement. Within Canada, in addition to federal actions, provincial, territorial, and municipal governments play a significant role in limiting emissions of air pollutants and GHGs. Provinces are working with the federal government to monitor air quality and air pollutant emissions. A notable example is Alberta's partnership with the Government of Canada to conduct Joint Oil Sands Monitoring to monitor air and water quality in the oil sands region. As announced in fall 2012 by the Canadian Council of Ministers of the Environment, provincial and territorial governments will also work with the federal government to implement the Air Quality Management System,

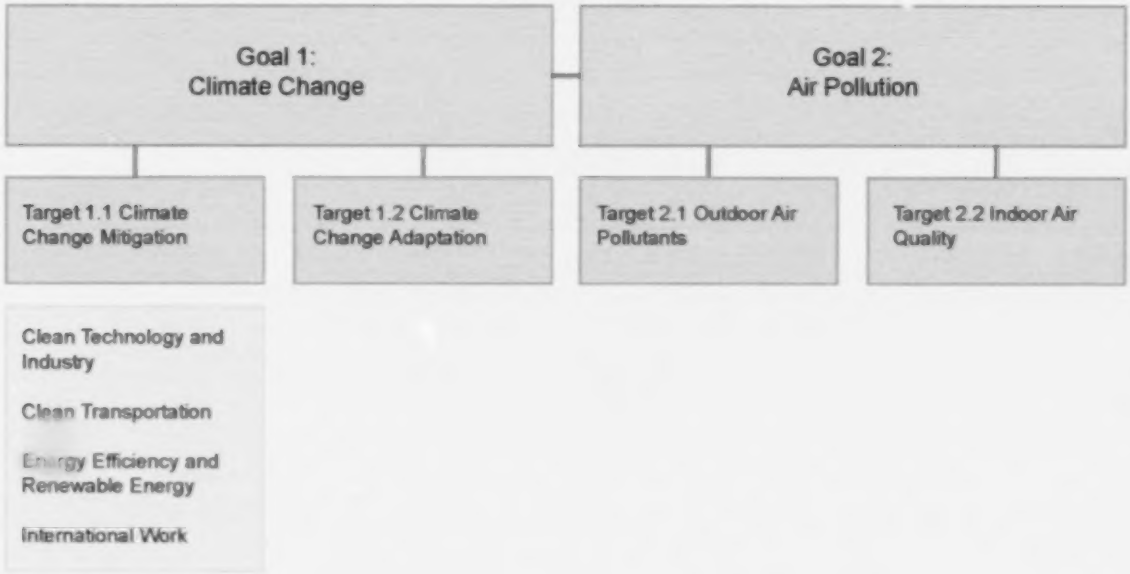
a new framework for managing air quality. In addition to federal and provincial/territorial governments, some Canadian municipalities are promoting lower- or zero-emission modes of transportation such as cycling and public transportation.

Municipal governments can also play a role in climate change adaptation by, for example, upgrading emergency response systems and taking climate projections into account in planning activities (Federation of Canadian Municipalities, 2013). Climate change is a key issue for Canadian companies, and many are taking action by, for example, investing in energy efficiency improvements. Businesses can also integrate other environmental and social objectives into business structures and processes in order to creatively innovate, address evolving societal expectations, and improve public credibility and confidence (Industry Canada, 2011). Meanwhile, individuals can take action by choosing lower- and zero-emission modes of transportation more often, and making energy-efficient choices in their homes, including energy-efficient windows, lighting, and appliances.

Outdoor air quality also has a significant influence on human health and on Canada's economy.

What the Federal Government Is Doing

Figure 6 – Theme I: Addressing Climate Change and Air Quality



The government has established two goals within this theme, on climate change and air pollution. Targets that support these goals address climate change mitigation (greenhouse gas emission reduction); climate change adaptation (increasing Canada's resilience to unavoidable climate change impacts); outdoor air pollutants (reducing emissions of sulphur oxides, nitrogen oxides, volatile organic compounds, particulate matter, carbon monoxide and ammonia); and indoor air quality (providing guidance aimed at reducing Canadians' exposure to indoor air pollutants). This theme includes all Clean Air Agenda (CAA) programming from 11 departments and agencies, including a number of new implementation strategies representing climate change and air-quality related work. The CAA, renewed in 2011, is a collection of initiatives that includes federal regulatory action on GHG emissions, international engagement and negotiation on climate change, support for climate change adaptation, and programs to reduce emissions to air from energy generation and transportation vehicles.

Social and economic dimensions

Climate change and air quality are closely linked to economic prosperity and human health and well-being. Similarly, implementation strategies under this theme have a range of social and economic co-benefits. For example, implementation strategies that support climate change adaptation can have economic benefits (for example, by improving the resilience of northern transportation infrastructure through Implementation Strategy 1.2.10) as well as benefits to human health (for example, by reducing infectious disease risks and public health threats related to climate change through Implementation Strategy 1.2.2). Implementation Strategy 2.1.19, on improving air quality through the Air Quality Management System, will contribute to limiting negative health impacts from air pollutants, while Implementation Strategy 2.2.2, on indoor radon levels, can contribute to limiting health impacts from indoor air pollution.

Diverse energy sources will serve to minimize risks to the energy supply available for northern communities, current businesses, and perspective investors. A diverse energy supply will also safeguard existing and proposed infrastructure from power shortages and shocks due to macroeconomic conditions.

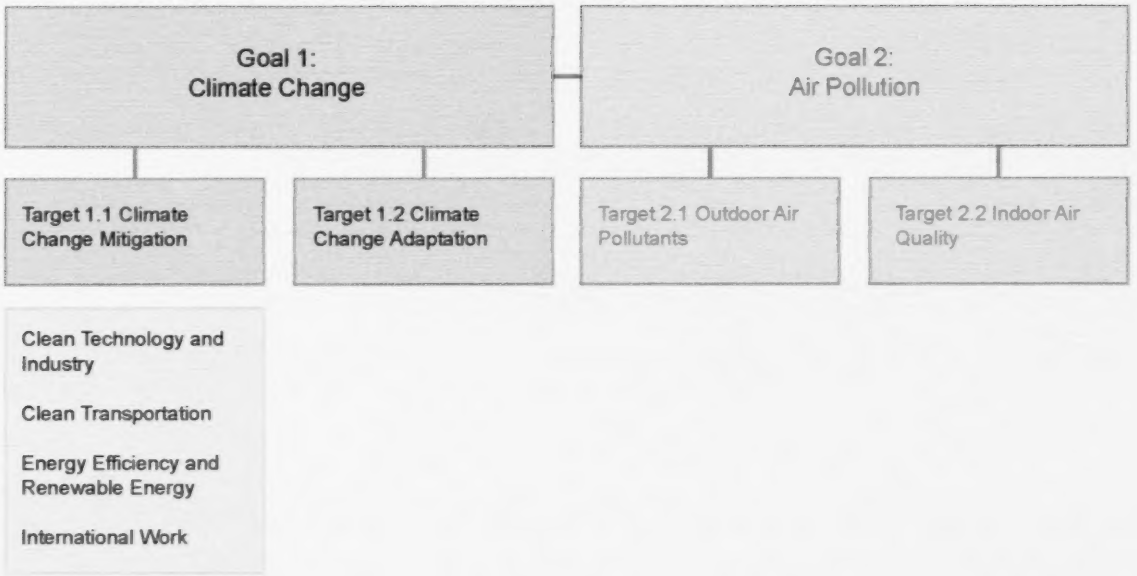
Social and economic impacts of severe weather and other incidents linked to climate change are tracked through the Canadian Disaster Database, maintained by Public Safety Canada. Monitoring disasters over time will better enable the government to see the impact of a changing climate and the benefits of adaptation.

Goal 1: Climate Change – In order to mitigate the effects of climate change, reduce greenhouse gas emission levels and adapt to unavoidable impacts.

Indicator:

- National greenhouse gas emissions

Figure 7 – Goal 1: Climate Change



To achieve this goal, the Government of Canada will:

- Continue to advance clean technology and implement its sector-by-sector regulatory approach to addressing GHG emissions from major industrial emitters and transportation. The approach involves developing and implementing regulations to limit GHG emissions from all major emitting sectors, including transportation, coal-fired electricity generation, oil and gas, and other key industrial sectors.
- Contribute to the development and generation of renewable energy and support energy efficiency. These efforts help to reduce reliance on traditional forms of energy, reduce greenhouse gas emissions and mitigate the impacts of climate change. For example, the government will:
  - Invest $1.4 billion over 14 years to support renewable energy projects through the ecoENERGY for Renewable Power Program;
  - Develop and implement energy efficiency codes, standards and labeling, information and benchmarking tools through the ecoENERGY Efficiency Program;
  - Support clean energy research, development and demonstration projects through the ecoENERGY Innovation Initiative; and
  - Encourage businesses, through the accelerated capital cost allowance for clean energy generation equipment, to invest in specified equipment.
- Engage with international partners by participating in global climate change negotiations and implementing Canada's commitments; work with the United States to advance clean energy priorities through the Clean Energy Dialogue; and address emissions of short-lived climate pollutants including through fora such as the Climate and Clean Air Coalition and the Arctic Council.
- Promote environmental sustainability in the private sector by, for example, supporting strategic, large-scale research and development projects through the Automotive Innovation Fund, and by working with industry to promote the adoption of technologies and practices that reduce greenhouse gas emissions.

- Take action on climate change adaptation. The Government of Canada has deepened its support for federal climate change adaptation activities, including programs to improve understanding of climate change impacts and provide credible, scientifically sound information to support adaptation planning and decision making. These efforts are guided by the Federal Adaptation Policy Framework, which will help the government take account of climate risks as decisions are made on a wide range of programs and activities that support the well-being of Canadians.

Target 1.1: Climate Change Mitigation
Relative to 2005 emission levels, reduce Canada's total GHG emissions 17% by 2020.
(Minister of the Environment)

Indicator:

- Expected impact of actions to meet the reduction target

Implementation Strategies for Clean Technology and Industry

Leading by Example

1.1.1. Develop domestic climate change strategies aligned with the U.S. as appropriate for Canadian circumstances as part of Canada's commitment to meet its national GHG emissions target. (EC)

Enabling Capacity

1.1.2. Provide analysis and assessments of the environmental performance of new and emerging technologies, and contribute to the oversight of programs, such as Sustainable Development Technology Canada, that advance clean technologies. (EC)

1.1.3. Continue to work with industry stakeholders to encourage and promote the adoption and adaptation of new technologies such as aerospace, information and communications technologies. (IC)

1.1.4. Continue to implement the Strategic Aerospace and Defence Initiative in support of strategic, research and development projects that contribute to new Aerospace and Defense technologies, and which may reduce GHG emissions and produce new energy efficiencies. (IC)

1.1.5. Continue to support the development and promote the use of corporate social responsibility (CSR) management tools by industry and the use of CSR standards in the Canadian marketplace in support of sustainable consumption and production, innovation and competitiveness. (IC)

1.1.6. Finance projects that would, among other things, help to optimize resource use, valuing residual resources, and contribute to eco-efficiency. (CED)

1.1.7. Work with industry stakeholders and technology developers to reduce the environmental footprint and impacts of the mining industry. (NRCan)

1.1.8. Continue to work with key stakeholders to ensure that consumers have the information and tools needed to protect their interests, while engaging in, and supporting, research and policy development on consumer issues such as sustainable consumption. (IC)

1.1.9. Continue to promote sustainable manufacturing practices to Canadian businesses recognizing that the adoption of technologies and processes that support innovation and competitiveness can also increase environmental sustainability. (IC)

1.1.10. Continue to advance environmental sustainability through support to co-operatives as businesses with economic, environmental and social sustainability goals by identifying and addressing barriers and opportunities to co-operative growth, and enabling access to emerging market opportunities. (IC)

1.1.11. Continue to support the growth of business services to manufacturing, including those which integrate innovation into product design and development and into the supply chain, and can result in environmental sustainability benefits. (IC)

Advancing Knowledge and Communication

1.1.12. Conduct targeted research to increase knowledge of climate change relative to agriculture and assess and report on the collective environmental and economic impact of the adoption of sustainable agriculture practices by farmers on the Canadian landscape. (AAFC)

1.1.13. Undertake and deliver scientific research, risk assessment and regular reporting in support of regulatory and other programs, including data analysis, inventory development, monitoring, modelling and assessment of the effectiveness of efforts as well as research on options, costs and benefits, and technology assessments. (EC)

1.1.14. Undertake modelling, analysis and research, and develop regulatory impact analysis statements in order to support informed federal decision making on policy approaches to reduce GHG emissions and to analyze the economic and competitiveness impacts of policy approaches. (EC)

1.1.15. Provide science information and expertise to inform science assessments and reports related to climate change. (EC)

Demanding Performance

1.1.16. Continue to implement and expand the single-window reporting initiative for national releases and emissions reporting. (EC)

1.1.17. Continue to develop and implement regulations to reduce GHG emissions from emissions intensive trade exposed (EITE) sectors. (EC)

1.1.18. Continue to develop and implement regulations and other instruments to reduce GHG emissions in the electricity sector. (EC)

1.1.19. Continue to develop regulations to reduce GHG emissions in the oil and gas sectors. (EC)

Implementation Strategies for Clean Transportation

Enabling Capacity

1.1.20. Provide tax relief to Canadians who use public transit regularly and encourage individuals to make a sustained commitment to using public transit regularly to help reduce traffic congestion, air pollution and GHG emissions, through the Public Transit Tax Credit. (FIN)

1.1.21. Continue to collaborate with partners to enhance Canada's competitive advantage in hydrogen and fuel cell technology development and commercialization. (IC)

1.1.22. Address GHG emissions by supporting the deployment of truck reservation systems at port and terminal facilities to improve efficiency in the movement of trucks into and out of terminal facilities at container ports and reduce truck idling. (TC)

1.1.23. Support fuel producers' capacity to produce renewable alternatives to gasoline and diesel. (NRCan)

1.1.24. Address GHG emissions from the marine sector by funding the installation of marine shore power facilities at Canadian ports. (TC)

1.1.25. Develop advanced materials technologies for use in new energy-efficient vehicle design, with a view of reducing the environmental impacts in transportation. (NRCan)

1.1.26. Address GHG emissions through testing and evaluation of advanced vehicle technologies to support the development of regulations and industry codes and standards, in order to ensure that new technologies that reduce GHG emissions can be introduced in Canada in a safe and timely manner. (TC)

1.1.27. Work with the standards community to develop and update codes and standards as they relate to alternative transportation fuels. (NRCan)

1.1.28. Continue to implement the Automotive Innovation Fund (AIF) through to 2018 in support of strategic, large-scale research and development projects leading to innovative, greener and more fuel-efficient vehicles. (IC)

1.1.29. Continue to work with provincial and territorial governments through a Mobile Sources Working Group (MSWG) to develop an action plan to reduce emissions from the mobile sources sector by sharing information and identifying areas of joint interest among jurisdictions, departments and ministries. (EC)

Advancing Knowledge and Communication

1.1.30. Work with key stakeholders (e.g. policy makers, end-users, alternative and conventional fuel producers, vehicle and equipment manufacturers) to increase their knowledge of alternative fuel pathways. (NRCan)

1.1.31. Quantify the carbon (GHG) footprint of Canada's strategic gateways and trade corridors. (TC)

1.1.32. Develop policy options for a regulatory framework in support of marine renewable energy development in the federal offshore, and share them with stakeholders in a timely manner. (NRCan)

Demanding Performance

1.1.33. Develop and implement GHG emission regulations for light-duty vehicles (for model years 2017–2025) and heavy-duty vehicles (for model years 2014–2018) under the *Canadian Environmental Protection Act, 1999*, which will align with those of the United States. (EC, TC)

1.1.34. Address GHG emissions from maritime shipping by working with the International Maritime Organization in the development of new international standards and recommended practices for marine vessels, as well as through the implementation of new Canadian regulations, and targeted research and development. (EC, TC)

1.1.35. Address GHG emissions from the rail sector through the joint Canada-U.S. locomotive emissions initiative under the Regulatory Cooperation Council, a voluntary agreement with the Canadian rail industry, and research activities to enhance understanding of new technologies to reduce GHG emissions. (TC)

1.1.36. Address GHG emissions from aviation by supporting the International Civil Aviation Organization's development of new international standards and recommended practices, through the development and implementation of new domestic standards, monitoring Canada's voluntary Action Plan in collaboration with the Canadian domestic aviation sector, and through targeted research. (TC)

1.1.37. Impose a Green Levy on the most fuel-inefficient passenger vehicles available in Canada. (FIN)

Implementation Strategies for Energy Efficiency and Renewable Energy

Enabling Capacity

1.1.38. Encourage businesses, through the accelerated capital cost allowance for clean energy generation equipment, to invest in specified equipment that can contribute to a reduction in harmful emissions and diversification of the energy supply. (FIN)

1.1.39. Diversify the western Canadian economy by making strategic investments in the commercialization and adoption of clean energy technologies through the Western Diversification Program. (WD)

1.1.40. Work with the public and federal government decision makers to ensure that they have access to information that supports decisions on climate change and clean energy issues. (NRCan)

1.1.41. Promote the adoption of energy efficient products and practices that contribute to the reduction of GHG emissions. (NRCan)

1.1.42. Support science and technology of innovative solutions for environmental challenges in the energy sector, with a view of reducing the environmental impacts and producing and using energy in a more clear and efficient way. (NRCan)

1.1.43. Develop new materials technologies in clean power generation, safe and reliable energy distribution and energy efficient end-use for use in industry. (NRCan)

1.1.44. Develop new materials technologies to transport fossil fuels more efficiently, with a view of reducing the environmental impacts from energy transportation. (NRCan)

1.1.45. Improve energy efficiency in Canada through programming that targets the housing, buildings, equipment, industrial and transportation sectors. (NRCan)

1.1.46. Promote the production of clean renewable electricity. (NRCan)

1.1.47. Work with Aboriginal and northern communities, organizations and governments on the development of sustainable energy. (AANDC)

1.1.48. The Atlantic Energy Gateway initiative aims to facilitate development of the Atlantic renewable energy sector by fostering collaboration, common understanding and communication among governments, and between governments and the private sector, to maximize and expedite the development of clean and renewable energy resources in the region. (ACOA)

Implementation Strategies for International Work on Climate Change

Leading by Example

1.1.49. Lead Government of Canada participation in international negotiations at the UN Framework Convention on Climate Change (UNFCCC) on climate change for a post-2020 climate change agreement. (EC)

Enabling Capacity

1.1.50. Work to implement Canada's commitments concluded in international climate change negotiations such as mitigation targets and actions; short-and long-term financing; mechanisms for technology and reducing emissions from deforestation and forest degradation; adaptation actions; and provisions for transparency and accountability of climate change actions. (EC, NRCan)

1.1.51. Provide legal services and advice for the international climate change negotiations, coordinate financial obligations. (DFATD)

1.1.52. Support Canada's participation in multilateral fora outside of the UNFCCC and ensure that Canada's international climate change objectives are advanced in international meetings including addressing short-lived climate pollutants (e.g. Climate and Clean Air Coalition, Global Methane Initiative and Global Alliance for Clean Cookstoves, Major Economies Forum and Arctic Council). (AAFC, EC)

1.1.53. Ensure that Canada's international climate change objectives related to energy and clean technology are advanced in international meetings (e.g. Canada-U.S. Clean Energy Dialogue, UNFCCC, Clean Energy Ministerial). (EC, NRCan)

1.1.54. Contribute to the overall functioning of the Intergovernmental Panel on Climate Change and the Inter-American Institute for Global Change Research and their ongoing work to produce policy-relevant scientific information on climate change. (EC)

1.1.55. Work with the U.S. and Mexico under the auspices of the Commission for Environmental Cooperation to address common issues related to climate change and air quality. (EC)

Advancing Knowledge and Communication

1.1.56. Develop and submit a complete and compliant annual national GHG Inventory Report and Common Reporting Format tables to the UNFCCC Secretariat by April 15 to meet UNFCCC reporting requirements. (EC)

1.1.57. Analyze key forest carbon options for climate change mitigation, ensure that Canada's international climate change objectives related to forests are advanced in international meetings, and continue to develop Canada's National Forest Carbon Monitoring, Accounting and Reporting System to provide annual forest-related GHG inventory estimates. (NRCan)

Target 1.2: Climate Change Adaptation

Facilitate reduced vulnerability of individuals, communities, regions and economic sectors to the impacts of climate change through the development and provision of information and tools.

(Minister of the Environment)

Indicator:

- Measuring adaptation is complex given the broad nature and scope of potential impacts. In the short term, measurement for the FSDS will focus on measures of the performance of specific government actions which are expected to be available for inclusion in the next FSDS Progress Report. These may be complemented in the future by additional indicators that measure adaptation outcomes for Canada more broadly.

Implementation Strategies

Enabling Capacity

1.2.1. Work with Aboriginal and northern communities, organizations and governments on climate change issues by supporting them in managing vulnerabilities and opportunities created by a changing climate. (AANDC)

1.2.2. Work with domestic and international stakeholders to reduce infectious disease risks and public health threats related to climate change by increasing public health capacity and expertise through targeted research, modelling and cost-benefit analysis. (PHAC)

1.2.3. Implement the Adaptation Platform to enable collaboration on adaptation including the development and exchange of information, tools and expertise. (NRCan)

1.2.4. Support adaptation by enabling the integrated assessment of the implications of climate change for Canada's forest sector. (NRCan)

1.2.5. Work with Aboriginal and northern communities to develop and deploy standards that support more resilient infrastructure and reduce impacts from climate change at the community level. (AANDC, SCC)

1.2.6. Work with Canadian communities to implement heat alert and response systems and provide information/education about the health impacts of extreme heat to public health professionals and the public. (HC)

1.2.7. Address the health effects of climate change by funding community-based research and assessment projects that enable northern First Nations and Inuit communities to develop climate change adaptation strategies and action plans. (HC)

1.2.8. Through the assessment of risk and the development of science-based knowledge and applied adaptation tools, enable climate change considerations to influence decision making by the Department and by Canadians at large. (DFO)

Advancing Knowledge and Communication

1.2.9. Improve understanding of climate-driven ecological change in Canada's North by using a combination of remote sensing techniques and working with park cooperative management boards to assess how ecological integrity and traditional land use may be affected by climate-driven changes in northern national parks. (PC)

1.2.10. Support the development and testing of innovative science-based tools and technologies to help improve the resiliency and adaptability of existing and future northern transportation infrastructure and Arctic marine operations. (TC)

1.2.11. Work with governments and communities in the North (north of 60° latitude) to ensure that they have information on adaptation measures. (NRCan)

1.2.12. Support adaptation decision making by providing the foundational science information to understand climate system behaviour, the human influence on climate, and future climate on various spatial and temporal scales. (EC)

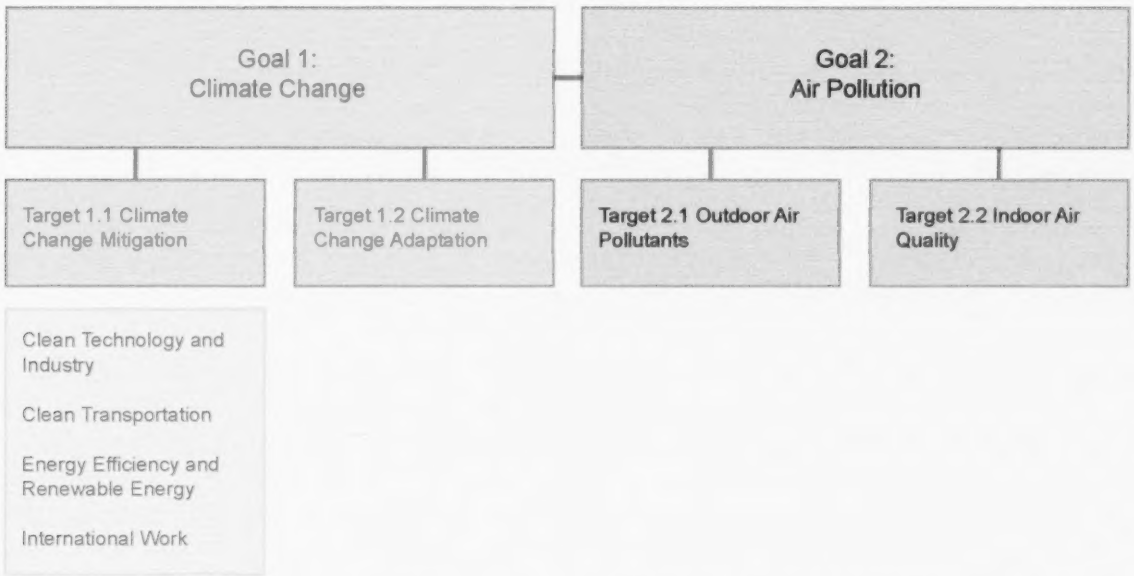
1.2.13. Support adaptation by improving knowledge on the climate change impacts on mine waste management and effluent treatment in the North. (NRCan)

Goal 2: Air Pollution – Minimize the threats to air quality so that the air Canadians breathe is clean and supports healthy ecosystems.

Indicator:

- Ambient levels of air pollutants (ground-level ozone, fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), and volatile organic compounds (VOCs))

Figure 8 – Goal 2: Air Pollution



To achieve this goal, the Government of Canada will work to address outdoor air pollutants and indoor air quality. Specifically, the government will:

- Work with provinces, territories, Aboriginal groups and stakeholders to implement the Air Quality Management System (AQMS), which includes new ambient air quality standards, a framework for managing air quality through local air zones and regional airsheds, as well as regulated emissions requirements for major industrial sectors.

- Work with other jurisdictions, including with the U.S. under the Canada-U.S. Air Quality Agreement, to undertake regional and international efforts to address transboundary air pollution of concern to Canadians and their environment.
- Conduct research assessments and communication activities in order to provide health-based guidance on reducing Canadians' exposure to indoor air pollutants.

Target 2.1: Outdoor Air Pollutants
Improve outdoor air quality by ensuring compliance with new or amended regulated emission limits by 2020 and thus reducing emissions of air pollutants in support of AQMS objectives.
(Minister of the Environment)

Indicators:

- Air pollutant emissions of sulphur oxides, nitrogen oxides, volatile organic compounds, particulate matter, carbon monoxide and ammonia
- Air health indicator – Trends in air-quality related health outcomes

Implementation Strategies

Enabling Capacity

2.1.1. Finance projects that would, among other things, help to optimize resource use, valuing residual resources, and contribute to eco-efficiency. (CED)

2.1.2. Encourage businesses, through the accelerated capital cost allowance for clean energy generation equipment, to invest in specified equipment that can contribute to a reduction in harmful emissions and diversification of the energy supply. (FIN)

2.1.3. The Atlantic Energy Gateway initiative aims to facilitate development of the Atlantic renewable energy sector by fostering collaboration, common understanding and communication among governments, and between governments and the private sector, to maximize and expedite the development of clean and renewable energy resources in the region. (ACOA)

2.1.4. Diversify the western Canadian economy by making strategic investments in the commercialization and adoption of clean energy technologies through the Western Diversification Program. (WD)

2.1.5. Provide tax relief to Canadians who use public transit regularly and encourage individuals to make a sustained commitment to using public transit regularly to help reduce traffic congestion, air pollution and GHG emissions, through the Public Transit Tax Credit. (FIN)

2.1.6. Address air pollutant emissions through testing and evaluation of advanced vehicle technologies to support the development of regulations and industry codes and standards, in order to ensure that new technologies that reduce air pollutant emissions can be introduced in Canada in a safe and timely manner. (TC)

2.1.7. Address air pollutant emissions by supporting the deployment of truck reservation systems at port and terminal facilities to improve efficiency in the movement of trucks into and out of terminal facilities at container ports and reduce truck idling. (TC)

2.1.8. Address air pollutant emissions from the marine sector by funding the installation of marine shore power facilities at Canadian ports. (TC)

2.1.9. Provide analysis and assessments of the environmental performance of new and emerging technologies, and contribute to the oversight of programs, such as Sustainable Development Technology Canada, that advance clean technologies. (EC)

2.1.10. Work with the U.S. and Mexico under the auspices of the Commission for Environmental Cooperation to strengthen environmental enforcement. (EC)

2.1.11. Communicate outdoor air pollution health risks to Canadians through the Air Quality Health Index (AQHI), which provides current and forecast air-quality information and advice on health risks in order to assist Canadians in making decisions on how to reduce their level of exposure. Continue development of the AQHI and continue implementation in all provinces and major communities in the North to achieve access for 80% of the Canadian population. (EC, HC)

Advancing Knowledge and Communication

2.1.12. Track releases of harmful substances under the National Pollutant Release Inventory in accordance with *Canadian Environmental Protection Act, 1999*. (EC)

2.1.13. Undertake and deliver scientific research, monitoring, modelling, testing, data analysis and science advice to inform regulations, policies, programs, science assessments, and services as well as to evaluate effectiveness of actions. (EC, HC)

2.1.14. Characterize the impacts of air pollution on ecosystems and wildlife in order to evaluate the impact of regulations and inform regulatory development. (EC)

2.1.15. Using the National Pollutant Release Inventory and other data sources, prepare and submit Air Pollutant Emission Inventory to meet domestic needs and international reporting requirements. (EC)

2.1.16. Undertake modelling, analysis and research, and develop regulatory impact analysis statements in order to support informed federal decision making on policy approaches to reduce air pollutant emissions and to analyze the economic and competitiveness impacts of policy approaches. (EC)

2.1.17. Begin to deliver scientific information and advice required to better understand the impacts of the oil sands sector on air quality and deposition of atmospheric contaminants into aquatic and terrestrial ecosystems. (EC)

2.1.18. Conduct basic and applied research to increase knowledge of the effects of agricultural production on air. (AAFC)

2.1.19. Continue to work collaboratively with provinces, territories and stakeholders to implement the Air Quality Management System, which includes new ambient air quality standards, a framework for managing air quality through local air zones and regional airsheds, and emissions requirements for major industrial sectors and equipment types. (EC, HC)

2.1.20. Work with other jurisdictions, including the U.S. under the Canada-U.S. Air Quality Agreement (AQA) to undertake regional and international efforts to manage transboundary air pollution of concern for Canadians and their environment. This includes work towards the completion of the necessary scientific, technical and regulatory foundations required for the consideration of a Particulate Matter Annex under the AQA. (EC, HC)

2.1.21. Address air pollutant emissions from maritime shipping by working with the International Maritime Organization in the development of new international standards and recommended practices for marine vessels, as well as through the implementation of new Canadian regulations, and targeted research and development. (EC, TC)

2.1.22. Address air pollutant emissions from aviation by supporting the International Civil Aviation Organization's development of new international standards and recommended practices, through the development and implementation of new domestic standards, and through targeted research. (TC)

2.1.23. Target control measures on volatile organic compounds in some consumer and commercial products. (EC)

2.1.24. Continue to develop, implement and administer emission standards to reduce air pollutants in the transportation sector. (EC)

2.1.25. Continue to develop, implement and administer emission standards to reduce air pollutants in the major industrial sectors and equipment types. (EC)

2.1.26. Address air pollutant emissions from the rail sector through locomotive regulations aligned with U.S. standards, and research activities to enhance understanding of new technologies to reduce air pollutant emissions. (TC)

2.1.27. Impose a Green Levy on the most fuel-inefficient passenger vehicles available in Canada. (FIN)

2.1.28. Continue to promote a North American proposal to phase-down emissions of hydrofluorocarbons under the Montreal Protocol and develop complementary domestic regulations where appropriate. (EC)

2.1.29. Deliver compliance promotion activities for key regulatory initiatives. (EC)

2.1.30. Revise domestic ozone-depleting substances regulations in support of the Montreal Protocol commitment to accelerate the phase-out of hydrochlorofluorocarbons. (EC)

Target 2.2: Indoor Air Quality

Help protect the health of Canadians by providing health-based guidance and tools to support actions to better manage indoor air quality.

(Minister of Health)

Indicator:

- Actions to manage indoor air quality that incorporate health-based guidance

Implementation Strategies

Advancing Knowledge and Communication

2.2.1. Conduct research, assessments and communication activities in order to provide health-based guidance on reducing exposure to indoor air pollutants. (HC)

2.2.2. Maintain a database of indoor radon levels in Canadian homes and buildings. Assess new methods and technologies for measuring and reducing radon gas levels in homes and buildings. Maintain a radon awareness program to give information to Canadians on ways to reduce their exposure to radon. (HC, StatCan)

2.2.3. Develop indoor air quality design tools, emission databases for building and consumer products, evaluate air purification solutions and technologies, and disseminate indoor air quality related information to building operators and homeowners. (NRC)

THEME II – MAINTAINING WATER QUALITY AND AVAILABILITY

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Why It Matters

The quality of water – drinking water as well as the water that supports aquatic ecosystems – is critically important to the health and wellbeing of Canadians and the environment. While water quality in Canada is generally good, challenges remain to maintain and improve it.

As noted in the 2012 FSDS Progress Report, some of Canada's key aquatic ecosystems remain under stress due to human activities – notably, in the Great Lakes, Lake Winnipeg, Lake Simcoe and the St. Lawrence River. Key issues for these ecosystems include eutrophication (excessive nutrients in the water leading to overgrowth of algae) as well as the introduction of harmful substances from urban areas and industrial activities, the degradation of wetlands, and lower than average water levels associated with climate change (Environment Canada, 2012).

When water quality in aquatic ecosystems is compromised, social and economic impacts can arise along with the environmental effects.

When water quality in aquatic ecosystems is compromised, social and economic impacts can arise along with the environmental effects. Environmental problems affecting these areas can mean reduced capacity to support human activities. As a result, Canadians may have fewer opportunities to enjoy aquatic ecosystems and may face higher costs and restrictions on sources of drinking water, industrial and agricultural water uses, and harvesting fish and shellfish from these areas.

Drinking water quality is particularly important to human health. Contamination of drinking water sources by pathogenic organisms or chemical pollutants can cause illness. In the case of potential microbiological contamination, this may result in boil water advisories to protect human health.

In addition to its importance to supporting aquatic life, water availability is a necessary condition for a range of economic activities. While Canada has abundant freshwater resources overall, water is not always readily available when and where it is most needed. Climate change may exacerbate current water availability challenges in the future – for example, by decreasing the availability of drinking water in the prairie region, while increasing the probability of flooding in other areas, such as the Great Lakes Basin (Environment Canada, 2011).

Sectors that rely on significant withdrawals of water in Canada include thermal power generation (the largest user of water), manufacturing, agriculture and municipalities. For most of these sectors, a majority of the water withdrawn is eventually discharged back to its original source. Agricultural activities such as crop irrigation, however, use water without enabling it to be discharged, making agriculture Canada's largest consumer of water (Environment Canada, 2013). Improving water management by encouraging conservation and investing in innovation to improve water efficiency can benefit the environment as well as the economy.

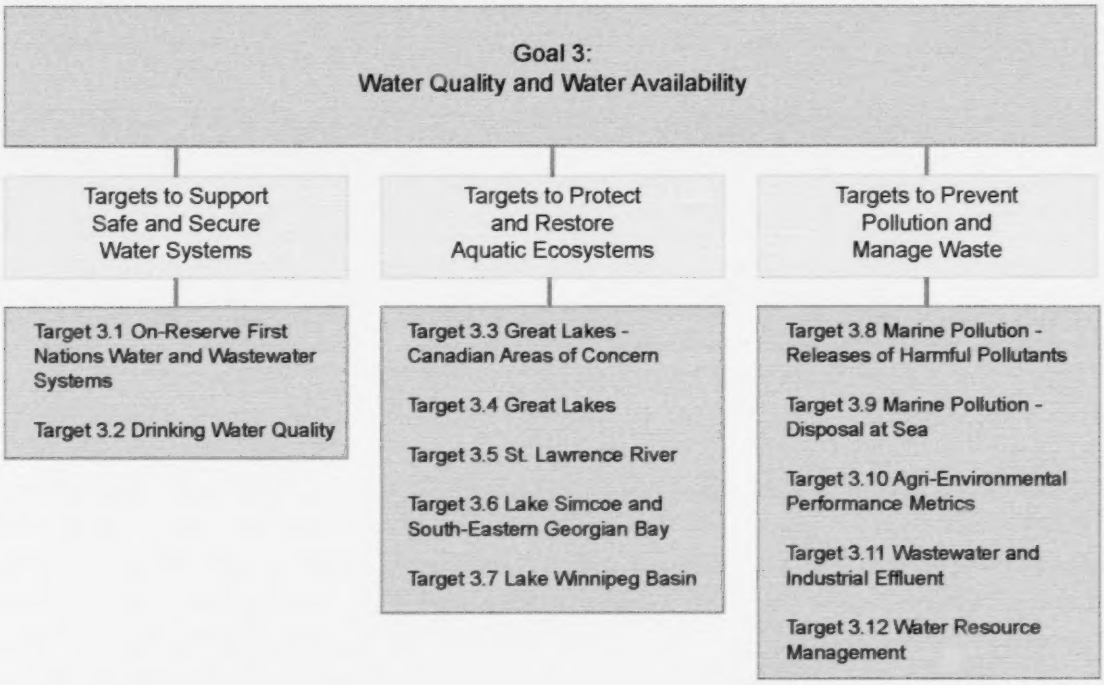
As compared to the first cycle, the second cycle of the FSDS better reflects the significance of water to Canada's economy and communities, as well as the impact of human activity on water and aquatic ecosystems. Targets on maintaining water quality and availability relate to restoring key aquatic ecosystems that provide social and economic benefits and continue to be under pressure from human activities; preventing and managing the impact of economic activity on water quality; and preventing negative health impacts that can result from compromised water quality.

What Others Are Doing

Responsibility for water management in Canada is shared among federal, provincial and territorial, municipal, and in some instances Aboriginal governments. Provincial and territorial governments, in addition to the federal government, have many legal instruments for controlling water pollution and for protecting drinking water quality. In addition to managing the water resources within their boundaries and undertaking their own initiatives on water, provinces – along with First Nations and municipalities – play an important role in ensuring their compliance with Canada's new *Wastewater System Effluent Regulations* and working with the Government of Canada to support the recovery of key aquatic ecosystems. Non-governmental organizations and community groups work with the Government of Canada and provincial governments to restore key aquatic ecosystems by providing local knowledge and reducing pollution (for example, in Great Lakes Areas of Concern). A number of economic sectors also contribute to improving water quality and availability. For instance, the agricultural sector can mitigate its effects on water through the use of beneficial management practices such as appropriate nutrient management, integrated pest management (to reduce the need for chemical pesticides), and measures to control runoff and erosion. The agricultural sector can have a significant impact on the health of riparian areas, strips of moisture-loving vegetation growing along the edges of natural water bodies. Agricultural producers can promote healthy riparian areas through measures such as maintaining permanent vegetation, either natural or seeded forage, near water bodies, reducing the intensity of grazing in riparian areas during vulnerable periods in the spring and fall, ensuring appropriate stocking rates, and altering livestock distribution with portable fences and watering systems. Individual citizens can also limit their impact on water quality and availability by limiting household use of chemical fertilizers and pesticides, installing water-saving appliances such as high-efficiency dishwashers, washing machines, toilets and shower heads, and protecting riparian zones on their property.

What the Federal Government Is Doing

Figure 9 – Theme II: Maintaining Water Quality and Availability


Goal 3:
Water Quality and Water Availability
Targets to Support Safe and Secure Water Systems
Targets to Protect and Restore Aquatic Ecosystems
Targets to Prevent Pollution and Manage Waste
Target 3.1 On-Reserve First Nations Water and Wastewater Systems
Target 3.2 Drinking Water Quality
Target 3.3 Great Lakes - Canadian Areas of Concern
Target 3.4 Great Lakes
Target 3.5 St. Lawrence River
Target 3.6 Lake Simcoe and South-Eastern Georgian Bay
Target 3.7 Lake Winnipeg Basin
Target 3.8 Marine Pollution - Releases of Harmful Pollutants
Target 3.9 Marine Pollution - Disposal at Sea
Target 3.10 Agri-Environmental Performance Metrics
Target 3.11 Wastewater and Industrial Effluent
Target 3.12 Water Resource Management

The government has put in place one goal on water quality and availability. Targets that support this goal promote safe and secure water systems (addressing on-reserve First Nations water and wastewater systems, and drinking water quality); protect and restore aquatic ecosystems (in particular, in the Great Lakes, St. Lawrence River, Lake Simcoe and south-eastern Georgian Bay; and Lake Winnipeg) and prevent pollution and manage waste (for example, targets to manage marine pollution). This theme reflects current policy and programming such as the current partnership between the federal government and the Province of Alberta to conduct environmental monitoring in the oil sands region and the new Canada-U.S. Great Lakes Water Quality Agreement. It also reflects the *Wastewater Systems Effluent Regulations*, established by the federal government under the *Fisheries Act*, which set Canada's first national standards for wastewater treatment and address the largest Canadian source of pollution to water. The federal government also has a number of other activities controlling water pollution including specific existing legal instruments for industrial sectors such as chemicals, mining and forestry.

Social and economic dimensions

Implementation strategies to reduce water pollution and ensure safe and secure water and wastewater systems are strongly linked to human health. For example, Implementation Strategies 3.2.1 (on developing drinking water quality guidelines) and 3.1.1-3.1.5 (on building capacity in First Nations on-reserve communities to monitor and manage water and wastewater systems) provide clear health benefits to Canadians. Restoring ecosystems in the Great Lakes, Lake Simcoe, Lake Winnipeg, and the St. Lawrence River (Implementation Strategies under

Targets 3.3-3.7) can provide health and economic benefits through improved environmental quality and greater opportunity for recreation and tourism in these areas. Implementation Strategy 3.12.2 can provide economic benefits through investment in water technologies.

Goal 3: Water Quality and Water Quantity – Protect and enhance water so that it is clean, safe and secure for all Canadians and supports healthy ecosystems.

Indicators:

- Freshwater quality in Canadian rivers
- Water quantity in Canadian rivers
- Drinking water advisories to identify the main causes of their issuance

To achieve targets on supporting safe and secure water systems (Targets 3.1 and 3.2), the Government of Canada will support improving drinking water quality and wastewater management in on-reserve First Nations communities, and work with other jurisdictions to develop health-based water quality guidelines across Canada. To achieve targets on protecting and restoring aquatic ecosystems (Targets 3.3 to 3.7) the government will continue to work with the United States, provincial and municipal governments, Aboriginal communities, domestic and international water boards, and stakeholders to conduct scientific research, undertake or support recovery actions, and monitor progress on ecosystem health. To achieve targets on preventing pollution and managing waste (Targets 3.8 to 3.12), the government will set legal and regulatory frameworks to protect the marine environment from pollution, support the adoption of sustainable agriculture practices, and reduce negative environmental impacts from wastewater and industrial effluent.

For example, the government will:

- Continue to provide training and capacity building to enable on-reserve First Nations communities to maintain and operate drinking and wastewater systems and to monitor their drinking water quality, and support First Nations communities on reserves in complying with Canada's *Wastewater Systems Effluent Regulations*.
- Continue to work with provinces, territories and federal departments to promote the use of a real-time tracking system for drinking water advisories.
- Continue to work with the U.S. through the recently amended Canada-U.S. Great Lakes Water Quality Agreement, and with provinces and stakeholders to conserve and restore key aquatic ecosystems in the Great Lakes, the St. Lawrence River and Lake Winnipeg.
- Continue to collaborate with domestic and international partners and stakeholders to address trans-boundary water issues and advance sustainable water management in the North, Central Canada, Atlantic Canada, and Western Canada.
- Collaborate with the Province of Alberta to implement the *Joint Canada-Alberta Implementation Plan for Oil Sands Monitoring*. The plan commits to a scientifically rigorous, comprehensive, integrated and transparent program to enhance monitoring of water, air, land and biodiversity in the oil sands region.
- Implement the new *Wastewater Systems Effluent Regulations*, established under the *Fisheries Act* and published in July 2012. The regulations set Canada's first minimum national standards for wastewater

treatment and address one of the largest Canadian sources of pollution to water. Collaboration is underway with provinces and territories to administer these regulations.

Targets to Support Safe and Secure Water Systems

Target 3.1: On-Reserve First Nations Water and Wastewater Systems
Increase the percent of on-reserve First Nations water systems with low risk ratings from 27% to 50% by 2015. Increase the percent of on-reserve First Nations wastewater systems with low risk ratings from 35% to 70% by 2015.
(Minister of Aboriginal Affairs and Northern Development)

Indicator:

- Risk rating for on-reserve First Nations Water and Wastewater Systems Management

Implementation Strategies

Enabling Capacity

3.1.1. Increase on-reserve First Nations capacity to operate and maintain water and wastewater systems by improving access to and support for operator certification and training, in order to augment the number of certified operators. (AANDC)

3.1.2. Prioritize investment support to on-reserve First Nations to target highest-risk water and wastewater systems. (AANDC)

3.1.3. Provide on-reserve First Nations with funding and advice regarding, design, construction, operation and maintenance of their water and wastewater treatment facilities. (AANDC)

3.1.4. Support all First Nations communities in ensuring ongoing access to a trained Community-Based Water Monitor or Environmental Health Officer. (HC)

3.1.5. Support all First Nations communities in ongoing monitoring of drinking water quality as per the Guidelines for Canadian Drinking Water Quality. (HC)

Advancing Knowledge and Communication

3.1.6. Develop, and update as required, technical guidance protocols, such as the Protocol for Centralised Drinking Water in First Nations Communities and the Protocol for Centralised Wastewater Treatment and Disposal in First Nations Communities, and the Protocol for Decentralised Water and Wastewater Systems in First Nations Communities. (AANDC)

Demanding Performance

3.1.7. Develop appropriate regulatory framework and legislation for safe drinking water and wastewater treatment in First Nations communities on reserves. (AANDC)

Target 3.2: Drinking Water Quality
Help protect the health of Canadians by developing up to 15 water quality guidelines/guidance documents by 2016.
(Minister of Health)

Indicator:

- Water quality guidelines/guidance documents

Implementation Strategy

Enabling Capacity

3.2.1. Develop on average five drinking water quality guidelines/guidance documents per year in collaboration with provinces/territories, which are used as a basis for their regulatory requirements. (HC)

Targets to Protect and Restore Aquatic Ecosystems

Target 3.3: Great Lakes – Canadian Areas of Concern
Take federal actions to restore beneficial uses[1] for delisting five Canadian Areas of Concern and to reduce the number of impaired beneficial uses in the remaining Areas of Concern by 25% by 2018.
(Minister of the Environment)

Indicator:

- Restoring the Great Lakes Areas of Concern

Target 3.4: Great Lakes
Contribute to the restoration and protection of the Great Lakes by developing and gaining bi-national acceptance of objectives for the management of nutrients in Lake Erie by 2016 and for the other Great Lakes as required.
(Minister of the Environment)

Indicator:

- Phosphorus levels in the Great Lakes

Implementation strategies refer to Targets 3.3 and 3.4:

Leading by Example

3.3.1. Provide leadership, oversight, coordination and governance for the Great Lakes by managing, delivering, and reporting on the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA), the Great Lakes Nutrient Initiative, and the Canada-Ontario Agreement. (DFO, EC)

1 A beneficial use impairment is a reduction in the chemical, physical or biological integrity of the waters of the Great Lakes sufficient to cause any of the following: restrictions on fish and wildlife consumption; tainting of fish and wildlife flavour; degradation of fish and wildlife populations; fish tumours or other deformities; bird or animal deformities or reproduction problems; degradation of benthos; restrictions on dredging activities; eutrophication or undesirable algae; restrictions on drinking water consumption, or taste and odour problems; beach closings; degradation of aesthetics; added costs to agriculture or industry; degradation of phytoplankton and zooplankton populations; and loss of fish and wildlife habitat.

The plans and strategies on evolving historic issues and issues of emerging concern include:

- Nutrients – Fulfilling obligations to address phosphorus loads to the Great Lakes.
- Aquatic invasive species – Commitments to prevent their introduction and spread.
- Habitat and species – Fulfilling obligations to address habitat and species protection.
- Chemicals of mutual concern – Fulfilling obligations to reduce or eliminate the use and release of chemicals of concern (mutually agreed to for action by Canada and the U.S.) using approaches that are accountable, adaptive and science-based.
- Climate change impacts – Fulfilling obligations to identify and quantify climate change impacts on water quality.

Enabling Capacity

3.3.2. Partner with Canadian and U.S. federal, state, tribal, provincial and municipal governments, First Nations, Metis, watershed management agencies, and other local public agencies to implement Remedial Action Plans and Lakewide Action and Management Plans in order to improve environmental quality and achieve the vision of a healthy and prosperous Great Lakes region. This includes funding from the Great Lakes Action Plan to coordinate Remedial Action Plans, providing technical and financial support through the Great Lakes Sustainability Fund to clean up and restore the Areas of Concern, and remediating contaminated sediment in Areas of Concern with funding from the Action Plan for Clean Water. (EC)

3.3.3. Implement long-term management solutions to clean up radioactive waste in the Port Hope area. (NRCan)

Advancing Knowledge and Communication

3.3.4. Release reports regularly on State of the Great Lakes environmental indicators, Progress Report of the Parties (Canada-U.S.), updates for Lakewide Action and Management Plans and a report on groundwater science. (EC)

3.3.5. Coordinate with the U.S. scientific research and monitoring activities in the Great Lakes in order to fulfill the obligations of the Canada-U.S. Great Lakes Water Quality Agreement. (EC)

Demanding Performance

3.3.6. Deliver and report on Great Lakes results federally-provincially, between the Government of Canada and the Province of Ontario through the Canada-Ontario Agreement and binationally between Canada and the U.S. through the Canada-U.S. Great Lakes Water Quality Agreement. (EC)

Target 3.5: St. Lawrence River
Take federal actions to reduce pollutants in order to improve water quality, conserve biodiversity and ensure beneficial uses in the St. Lawrence River by 2016.
(Minister of the Environment)

Indicator:

- Phosphorus levels in the St. Lawrence River

Implementation Strategies

Leading by Example

3.5.1. Provide leadership, oversight, and coordination to the overall governance of the St. Lawrence Action Plan and report results achieved between the Government of Canada and the Government of Quebec. (EC)

Enabling Capacity

3.5.2. Establish cooperative partnerships between the federal and provincial governments to address biodiversity conservation, water quality improvement and sustainability of beneficial uses, and support stakeholder participation in collaboration processes and communities in improving environmental quality through Grants and Contribution Agreements. (EC)

Advancing Knowledge and Communication

3.5.3. Conduct and coordinate prediction and monitoring activities in the St. Lawrence with other federal and provincial departments and release reports regularly on the State of the St. Lawrence and factsheets on 21 environmental indicators. (EC)

Target 3.6: Lake Simcoe and South-eastern Georgian Bay
Reduce an estimated 2000 kg of phosphorus loadings to Lake Simcoe by 2017, which will support the Province of Ontario's target to reduce phosphorus inputs into Lake Simcoe to 44 000 kg/year by 2045. Reduce an estimated 2000 kg of phosphorus loadings to south-eastern Georgian Bay watersheds by 2017.
(Minister of the Environment)

Indicator:

- Reducing phosphorus loads to Lake Simcoe

Implementation Strategy

Enabling Capacity

3.6.1. Provide financial and technical support through the Lake Simcoe/South-eastern Georgian Bay Clean-Up Fund to implement priority projects aimed at reducing phosphorus inputs,

conserving aquatic habitat and species, and enhancing research and monitoring capacity essential to the restoration of the Lake Simcoe and South-eastern Georgian Bay Basin watersheds. (EC)

Target 3.7: Lake Winnipeg Basin
By 2017, reduce phosphorus inputs to water bodies in the Lake Winnipeg Basin, in support of the Province of Manitoba's overall plan to reduce phosphorus in Lake Winnipeg by 50% to pre-1990 levels.
(Minister of the Environment)

Indicators:

- Nitrogen and phosphorus levels in Lake Winnipeg
- Reducing phosphorus loads to Lake Winnipeg

Implementation Strategies

Leading by Example

3.7.1. The Lake Winnipeg Basin Management Office will coordinate and manage the activities of the Lake Winnipeg Basin Initiative, work with existing water governance bodies, explore options and opportunities to cooperatively develop and support the implementation of a basin-wide nutrient strategy, and provide a forum for communication. This includes working with the Province of Manitoba to continue implementation of the Canada-Manitoba Memorandum of Understanding Respecting Lake Winnipeg, which provides for a long-term collaborative and coordinated approach between the two governments to ensure the sustainability and health of the Lake Winnipeg Basin. (EC)

Enabling Capacity

3.7.2. Provide financial and technical support, through the Lake Winnipeg Basin Stewardship Fund, to projects having concrete, demonstrable results to reduce pollutants and, in particular, nutrient loads, throughout the Lake Winnipeg Basin. (EC)

Advancing Knowledge and Communication

3.7.3. Conduct science and monitoring activities required to understand the relationship between ecology and nutrient cycling and the sources and transport mechanisms for nutrients within Lake Winnipeg and its sub watersheds. This information helps inform the development of nutrient objectives and performance indicators for Lake Winnipeg. (EC)

Targets to Prevent Pollution and Manage Waste

Target 3.8: Marine Pollution – Releases of Harmful Pollutants
Protect the marine environment by an annual 5% reduction in the number of releases of harmful pollutants in the marine environment by vessels identified during pollution patrol from 2013-16.
(Minister of Transport)

Indicator:

- Number of marine pollution spills from identified vessels

Implementation Strategies

Demanding Performance

3.8.1. Set the legal and regulatory frameworks through domestic legislation and international conventions that govern the protection of the marine environment from pollution, the introduction of invasive species and the environmental impact of pollution incidents, and advance Canadian positions on reducing and managing global marine pollution from ships. (TC)

3.8.2. Contribute to reducing pollution from vessels by monitoring compliance of marine transportation firms with Canadian legislation such as the *Canada Shipping Act, 2001* through the National Aerial Surveillance Program, inspections, audits, monitoring, and enforcement. (TC)

3.8.3. Implementation of the World Class Tanker Safety initiatives announced in Budget 2012 and on March 18, 2013 to support Responsible Resource Development. This includes, among others, increased tanker inspection, aerial surveillance, navigational products, and a new Incident Command System. (TC)

Target 3.9: Marine Pollution – Disposal at Sea
Ensure that permitted disposal at sea is sustainable, such that 85% of disposal site monitoring events do not identify the need for site management action (such as site closure) from 2013-16.
(Minister of the Environment)

Indicator:

- Monitored disposal at sea sites requiring no management action

Implementation Strategies

Demanding Performance

3.9.1. Complementary to 3.8.1, set the regulatory frameworks through domestic legislation and international conventions that govern the protection of the marine environment from pollution from disposal at sea, and advance Canadian positions that can influence global rules towards reducing and managing global marine pollution from all sources. (EC)

3.9.2. Contribute to reducing pollution from disposal at sea through permit assessment and monitoring to ensure sustainability in compliance with Canadian legislation such as the *Canadian Environmental Protection Act, 1999*. (EC)

Target 3.10: Agri-Environmental Performance Metrics
Achieve a value between 81–100 on each of the Water Quality and Soil Quality Agri-Environmental Performance Metrics by March 31, 2030.
(Minister of Agriculture and Agri-Food)

Indicator:

- Water quality and soil quality agri-environmental performance metrics

Implementation Strategies

Enabling Capacity

3.10.1. Provide cost-shared funding to provinces and territories that provide a systematic approach to farmers to assess priority environmental risks, plan effective mitigation and increase adoption of sustainable agricultural practices at farm and landscape levels. The program components will be determined in 2013. (AAFC)

Advancing Knowledge and Communication

3.10.2. Conduct targeted research to increase knowledge of water resources relative to agriculture and enhance knowledge of nutrient management to increase efficiency and lower the potential of contamination of water resources. (AAFC)

3.10.3. Assess and report on the collective environmental and economic impact of the adoption of sustainable agriculture practices by farmers on the Canadian landscape. (AAFC)

3.10.4. Working with provincial colleagues through the Canadian Council of Ministers of the Environment, produce a guidance manual for developing nutrient objectives for rivers, and identify additional opportunities for research on mitigating excess nutrients in Canadian waters. (EC)

Target 3.11: Wastewater and Industrial Effluent
Reduce risks associated with effluent from wastewater (sewage) and industrial sectors by 2020.
(Minister of the Environment)

Indicators:

- Wastewater effluent quality – percentage of wastewater systems whose releases achieve regulatory limits
- Wastewater effluent loading – loading of biological oxygen demand matter and suspended solids
- Metal mining effluent quality – percentage of facilities whose releases achieve regulatory limits
- Pulp and paper effluent quality – percentage of facilities whose releases achieve regulatory limits

Implementation Strategies

Demanding Performance

3.11.1. Administer the *Wastewater Systems Effluent Regulations* to reduce the threats to fish, fish habitat, and human health from fish consumption. (EC)

3.11.2. Continue to work with the Northwest Territories, Nunavut, Quebec, and Newfoundland and Labrador on minimum effluent quality standards for wastewater effluent for the far north. (EC)

3.11.3. Administer the *Metal Mining Effluent Regulations* under the *Fisheries Act* to control or manage the deposit of selected deleterious substances into water to protect water quality and aquatic ecosystems. (EC)

3.11.4. Administer the *Pulp and Paper Effluent Regulations* under the *Fisheries Act* to control or manage the deposit of selected deleterious substances into water to protect water quality and aquatic ecosystems. (EC)

Target 3.12: Water Resource Management
Facilitate sustainable water resource management through the collection of data and the development and dissemination of knowledge from 2013-16.
(Minister of the Environment)

Indicator:

- Overall client satisfaction index, on a scale of 1 (unsatisfactory) to 10 (excellent) towards Environment Canada's delivery of the hydrometric program

Implementation Strategies

Enabling Capacity

3.12.1. Deliver, with the Atlantic provinces, collaborative environmental initiatives that advance long-term coordinated approaches to water management that ensure the sustainability and health of water resources in Atlantic Canada. (EC)

3.12.2. Diversify the western Canadian economy by making strategic investments in the commercialization and adoption of water technologies through the Western Diversification Program. (WD)

Advancing Knowledge and Communication

3.12.3. Collaborate with the Government of Alberta and stakeholders to implement an industry-funded integrated approach to monitoring, evaluation, and reporting on the significance of environmental contaminant pathways in air and water, biological effects, and impacts of habitat disturbance as described in the Joint Canada-Alberta Implementation Plan for Oil Sands Monitoring. (EC)

3.12.4. Collect and disseminate hydrological data and knowledge through the Water Survey of Canada, in order to help Canadian jurisdictions make water management decisions that ensure health and safety and support economic efficiency. (EC)

3.12.5. Conduct surveys on water use such as the Canadian Environmental Sustainability Indicators Industrial Water Use Survey, Survey of Drinking Water Plants, Agriculture Water Use Survey, and Households and the Environment Survey. (StatCan)

3.12.6. Provide governments and industry with access to necessary groundwater geoscience information. (NRCan)

3.12.7. Continue to engage in domestic water boards (e.g. Prairie Provinces Water Board and Mackenzie River Basin Board) and international water boards (e.g. International Joint Commission) to coordinate on trans-boundary water issues with other Canadian federal, provincial, and territorial agencies and relevant U.S. counterparts. (EC)

3.12.8. Continue to work through the Canadian Council of Ministers of the Environment towards a national approach to assess groundwater sustainability in order to support integrated water management decisions at the federal, provincial, and territorial levels. (EC)

3.12.9. Conduct research and monitoring to advance knowledge on the state of Canada's watersheds. (EC)

3.12.10. Continue to cooperate on ecosystem initiatives such as lake evaporation in the Okanagan ecosystem and sustainability indicators that incorporate First Nations traditional knowledge in the Salish Sea ecosystem. (EC)

THEME III – PROTECTING NATURE AND CANADIANS

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Why It Matters

Conserving Canada's natural landscapes and marine areas, protection and recovery of its wild species, and protecting Canadians from exposure to harmful substances are essential to Canada's environmental, social and economic well-being. Proper management of chemical substances is essential for protecting the health of Canadians and the environment, as well as reducing future costs associated with water treatment, clean-up of contaminated sites, and treatment of illnesses related to chemical exposure (Government of Canada, 2010). Protecting species and their habitats helps preserve biodiversity – the variety of plants, animals, and other life in Canada. Biodiversity, in turn, promotes the ability of Canada's ecosystems to perform valuable ecosystem services such as releasing oxygen to the atmosphere while absorbing carbon dioxide (a major greenhouse gas), filtering drinking water, enabling new plants to grow through pollination, and capturing the sun's energy, which is vital to all life. When ecosystem services are compromised, economic and health impacts such as lower agricultural productivity and lower-quality drinking water can result, raising costs for Canadians, industry and governments. Further, without protection and conservation of natural areas, Canadians would have fewer opportunities to connect with and enjoy our country's natural beauty, and to engage in outdoor recreational activities.

When ecosystem services are compromised, economic and health impacts such as lower agricultural productivity and lower-quality drinking water can result.

Canada's natural resources are a major contributor to economic activity. Industries that directly rely on a sustainable natural environment include forestry, agriculture, fisheries and aquaculture. In 2011, Canada's forest sector, which includes forestry and logging, pulp and paper, and wood product manufacturing, accounted for about 1.9% of Canada's total GDP. It also provided direct employment for approximately 235 900 Canadians (Natural Resources Canada, 2012). In 2011, $7.4 billion was the approximate value of the products and outputs of the commercial fishing, aquaculture and fish processing industries with some 85 000 employed in these industries across Canada (Fisheries and Oceans Canada, 2013). Parks Canada places contribute $3.3 billion annually to the Canadian economy, sustaining more than 41 000 jobs in hundreds of communities across the country.

While both forests and fish represent renewable resources, inadequate management of these resources can contribute to their depletion and threaten the viability of the sectors that depend on them. Lack of attention to the sustainable management of these resources can also threaten the biodiversity and environmental well-being of Canada's oceans, lakes, rivers and forested areas.

The second cycle of the FSDS enhances the strategy's link between nature, the economy and society. Including a target on chemicals management in this theme highlights an important connection between human and environmental health, and brings together federal actions in this area in one place. The second cycle also broadens the coverage of actions under the government's goal on responsible development of Canada's biological resources so that it is relevant to a broader range of resources and sectors, for example by including a target on sustainable agriculture. It also updates the strategy's target and indicators related to environmental disasters, incidents and emergencies to reflect and measure the economic and social impacts of these events.

What Others Are Doing

In Canada, the federal government, provinces, territories and Aboriginal groups work together to protect Canadian landscapes, seascapes, ecosystems and species at risk. For instance, provincial and territorial governments establish and manage parks and marine areas, implement provincial and territorial wildlife and species at risk legislation, and manage forests and other biological resources within provincial and territorial boundaries. Industries that rely on the sustainable management of biological resources are also taking steps to help protect nature. For example, producers of forest and fisheries products can seek third-party certification (such as that of the Canadian Standards Association Sustainable Forest Management System and the Marine Stewardship Council, respectively) to affirm the sustainable management of the resources. The Boreal Leadership Council convenes a range of actors – non-governmental organizations, First Nations, industry, governments, and others – to support conservation and sustainable resource development in Canada's boreal region. Meanwhile, individuals also play a role by responsibly enjoying Canada's protected areas and complying with species at risk legislation. At the international level, the United Nations Convention on Biological Diversity (UNCBD) is a key multilateral environmental agreement intended to conserve biological diversity. Current initiatives under the UNCBD include the Aichi Biodiversity Targets, intended to help monitor global progress on biodiversity and support member countries' efforts to implement their own biodiversity monitoring frameworks.

What the Federal Government Is Doing

Figure 10 – Theme III: Protecting Nature and Canadians

Goal 4:
Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians
Goal 5:
Biological Resources
Targets to Conserve and Restore Ecosystems, Wildlife and Habitat
Targets to Protect Canadians and their Environment
Targets to Support Sustainable Use of Biological Resources
Target 4.1 Species at Risk
Target 4.2 Migratory Birds
Target 4.3 Terrestrial Ecosystems and Habitat Stewardship
Target 4.4 Improving the Health of National Parks
Target 4.5 Marine Ecosystems
Target 4.6 Invasive Alien Species
Target 4.7 Environmental Disasters, Incidents and Emergencies
Target 4.8 Chemicals Management
Target 5.1 Sustainable Fisheries
Target 5.2 Sustainable Aquaculture
Target 5.3 Sustainable Forest Management
Target 5.4 Sustainable Agriculture

Two goals are in place under this theme – one aimed at conserving and restoring ecosystems, wildlife and habitat, and protecting Canadians (supported by targets that address, for example, species at risk, migratory birds, alien invasive species, and chemicals management); and one that supports the sustainable use of biological resources

(with targets that promote sustainable fisheries, aquaculture, forest management, and agriculture). FSDS targets on species at risk, federal protected areas (terrestrial ecosystems and habitat stewardship, and marine ecosystems), invasive alien species, sustainable aquaculture, sustainable forest management and sustainable agriculture are aligned with Canada's proposed 2020 Biodiversity Targets. Additional federal actions to advance conservation objectives and the sustainable use of resources are intended to be developed under a National Conservation Plan (NCP), which will build on existing successes and encourage innovative approaches to conservation. The NCP is expected to include activities undertaken by governments, conservation organizations, industry, Aboriginal groups and other components of Canadian society.

Social and economic dimensions

Implementation strategies related to chemicals management (Target 4.8) are important to human health and the environment, helping to reduce threats to Canadians and their environment from the negative impacts that can result from exposure to harmful substances. Implementation strategies related to environmental disasters, incidents, and emergencies (Target 4.7) have social and economic benefits by contributing to the safety of Canadians, property, and infrastructure. Those that help conserve biological resources (implementation strategies under Targets 5.1, 5.2, 5.3, and 5.4) provide economic benefits by ensuring the sustainability of four vital industries – fisheries, aquaculture, forestry, and agriculture.

Goal 4: Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians – Resilient ecosystems with healthy wildlife populations so Canadians can enjoy benefits from natural spaces, resources and ecological services for generations to come.

Indicators:

- General status of species in Canada
- Level of exposure to substances of concern

Figure 11 – Goal 4: Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians

Goal 4:
Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians
Goal 5:
Biological Resources
Targets to Conserve and Restore Ecosystems, Wildlife and Habitat
Targets to Protect Canadians and their Environment
Targets to Support Sustainable Use of Biological Resources
Target 4.1 Species at Risk
Target 4.2 Migratory Birds
Target 4.3 Terrestrial Ecosystems and Habitat Stewardship
Target 4.4 Improving the Health of National Parks
Target 4.5 Marine Ecosystems
Target 4.6 Invasive Alien Species
Target 4.7 Environmental Disasters, Incidents and Emergencies
Target 4.8 Chemicals Management
Target 5.1 Sustainable Fisheries
Target 5.2 Sustainable Aquaculture
Target 5.3 Sustainable Forest Management
Target 5.4 Sustainable Agriculture

To achieve this goal, the Government of Canada will:

- Manage, enhance, and expand Canada's network of protected areas, including national parks, national wildlife areas, marine protected areas, national marine conservation areas, migratory bird sanctuaries and marine wildlife areas. This will include, for example, efforts to increase the ecological integrity of protected areas, improve the condition of ecosystems, establish new protected areas, and adopt integrated management approaches for ocean activities.
- Reduce risks and impacts to human health and the environment posed by releases of harmful substances. This will include, for example, completing remediation and risk management activities at known high priority federal contaminated sites; completing assessment of 1500 existing commercial substances identified under the Chemicals Management Plan and initiating action to manage risks where required; and addressing new chemical substances to determine if they may pose risks to human health and the environment.

Targets to Conserve and Restore Ecosystems, Wildlife and Habitat

Target 4.1: Species at Risk
By 2020, populations of species at risk listed under federal law exhibit trends that are consistent with recovery strategies and management plans.
(Minister of the Environment)

Indicator:

- Species at risk population trends

Implementation Strategies

Leading by Example

4.1.1. Commit to collaborating and consulting with *Species at Risk Act* competent departments for the development of recovery strategies, action plans and management plans for species at risk on DND lands. (DND)

Enabling Capacity

4.1.2. Work with the U.S. and Mexico under the auspices of the Commission for Environmental Cooperation to strengthen wildlife enforcement. (EC)

4.1.3. Support the development of Aboriginal knowledge and expertise in dealing with species at risk, so that Aboriginal peoples can actively participate in the conservation and recovery of listed species and protect and recover critical habitat or habitat important for species at risk on First Nations reserves or on land and waters traditionally used by Aboriginal peoples. (EC)

4.1.4. Engage Canadians in conservation actions to conserve biodiversity through protecting or conserving habitats for species at risk by promoting the participation of local communities to help with the recovery of species at risk, and prevent other species from becoming a conservation concern to meet regional and national priorities. (EC)

4.1.5. Continue to lead and cooperate under the National Recovery Program (RENEW) with provinces and territories, consistent with the Accord for the Protection of Species at Risk. (EC)

Demanding Performance

4.1.6. Fulfill the federal government's obligations under the *Species at Risk Act* to evaluate populations and to add, reclassify or remove species listed under the Act and plan for their recovery. This includes the general administration of the Act (including an annual report to Parliament, issuance of permits under the Act, support for the National Aboriginal Council on Species at Risk and the Committee on the Status of Endangered Wildlife in Canada, and maintenance of a public registry). (EC)

4.1.7. Fulfill Canada's obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora through the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* by helping to ensure that the status of no species is threatened by international trade. (EC)

4.1.8. Enhance the implementation of the *Species at Risk Act* within DFO and EC to protect and recover species at risk relative to their respective mandates by preparing recovery strategies, and management and action plans as applicable. (DFO, EC)

4.1.9. Develop action plans for all protected heritage areas with five or more species at risk by March 2016. (PC)

Target 4.2: Migratory Birds
Improve the proportion of migratory bird species that meet their population goals[2].
(Minister of the Environment)

Indicator:

- Proportion of species that are within acceptable bounds of their population goals

Implementation Strategies

Demanding Performance

4.2.1. Fulfill Canada's obligations under the Migratory Bird Convention of 1916 between Canada and the U.S. as implemented in Canada under the *Migratory Birds Convention Act, 1994*. This includes conserving populations, individual birds, their nests, and important bird habitat through continued conservation actions, stewardship, policy development, and enforcement of the Act and its regulations. (EC)

4.2.2. Complete and make publicly available each of the 25 Bird Conservation Region Strategies, and ensure that recommended actions from these strategies are implemented for priority migratory bird species. (EC)

2 Population goals are being finalized in 2013 with provinces and territories.

Target 4.3: Terrestrial Ecosystems and Habitat Stewardship
Contribute to the proposed national target that by 2020, at least 17% of terrestrial areas and inland water are conserved through networks of protected areas and other effective area-based conservation measures.
(Minister of the Environment)

Indicators:

Habitat conserved indicators:

- Land secured by Environment Canada and partners as a percentage of the total amount needed to achieve waterfowl population goals
- Total land area and shoreline that has been improved or restored to benefit wildlife under the Habitat Stewardship Program
- Total land area identified that is key to the conservation of migratory birds and species at risk
- Percentage of total terrestrial territory (including inland water) conserved in protected areas and other effective area-based conservation measures

Implementation Strategies

Leading by Example

4.3.1. Lead Canada's implementation of the United Nations Convention on Biological Diversity with stakeholders, provincial governments and other federal government departments and represent Canada's domestic interests in other international fora (e.g., Nagoya Protocol on Access and Benefit-Sharing, Liability and Redress under the Biosafety Protocol; Conservation of Arctic Flora and Fauna under the Arctic Council). (EC)

4.3.2. Serve as Canadian lead and national focal point for the UN-sponsored Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES). (EC)

Enabling Capacity

4.3.3. Enhance and promote enforcement in Environment Canada Protected Areas (Migratory Bird Sanctuaries and National Wildlife Areas) through a contingent of enforcement officers and take appropriate enforcement measures against alleged offenders. (EC)

4.3.4. Provide for the protection of priority habitats required for the conservation of migratory birds and species at risk, as well as unique and rare habitats, by managing a network of National Wildlife Areas, Migratory Bird Sanctuaries and Marine Wildlife Areas that is planned to adapt to ecological change; administering the Ecological Gifts Program; contributing to the development and implementation of the North American Waterfowl Management Plan; administering permits; and entering partnership arrangements (including collaboration with Aboriginal groups, other wildlife management agencies, other natural resource agencies, non-governmental organizations, private property owners, and other jurisdictions). (EC)

4.3.5. Implement the Inuit Impact and Benefits Agreement, and continue to work with the Government of the Northwest Territories (NWT) on the NWT Protected Areas Strategy, with the objective of establishing additional protected areas in NWT and Nunavut. (EC)

4.3.6. Maintain the incentives for the protection of Canada's ecologically sensitive land, including habitat used by species at risk, through ongoing tax assistance for donations of ecologically sensitive land under the Ecological Gifts Program. (FIN)

4.3.7. Work with the U.S. and Mexico under the auspices of the Commission for Environmental Cooperation to foster conservation. (EC)

Advancing Knowledge & Communication

4.3.8. Provide scientific expertise, guidance and advice to decision makers, and develop and apply models for social, cultural and economic valuation of ecosystem services to support sustainable development decision making so that ecosystem information and environmental effects of development proposals can be factored into decisions. (EC, IC, StatCan)

4.3.9. Support research efforts to develop and apply models for economic valuation of natural capital to improve the understanding of natural capital productivity and productivity in general in Canada and to support sustainable development decision making. (IC)

4.3.10. Conduct biodiversity contaminants monitoring as part of the Joint Oil Sands Monitoring Implementation Plan in order to provide an improved understanding of the long-term cumulative effects of oil sands development. (EC)

4.3.11. Develop an inventory of protected spaces that includes private conservation areas. (EC)

Demanding Performance

4.3.12. Participate in implementing the North American Waterfowl Management Plan which aims to conserve wetlands in order to benefit waterfowl in North America. Canada has committed to promoting the wise use of wetlands and maintaining the ecological character of designated Wetlands of International Importance under the Convention on Wetlands of International Importance (Ramsar Convention). (EC)

4.3.13. Make demonstrable progress on a yearly basis towards establishing national parks in one unrepresented region. (PC)

4.3.14. Increase the number of represented terrestrial natural regions from 28 in March 2012 to 30 of 39 by March 2015. (PC)

Target 4.4: Improving the Health of National Parks
Improve the condition of at least one Ecological Integrity Indicator in 20 national parks by 2015.
(Minister of the Environment)

Indicator:

- Ecological integrity of national parks

Implementation Strategy

Demanding Performance

4.4.1. 80% of active management targets to improve ecological integrity are met by March 2015. (PC)

Target 4.5: Marine Ecosystems
By 2020, 10% of coastal and marine areas are conserved through networks of protected areas and other effective area-based conservation measures.
(Minister of Fisheries and Oceans)

Indicator:

- Percentage of total coastal and marine territory conserved in marine protected areas and other effective area-based conservation measures

Implementation Strategies

Enabling Capacity

4.5.1. Develop a federal-provincial-territorial network of Marine Protected Areas. (DFO)

Advancing Knowledge and Communication

4.5.2. Adopt integrated management approaches for ocean activities. (DFO)

4.5.3. Identify indicators and develop draft monitoring protocols for existing Marine Protected Areas. (DFO)

4.5.4. Undertake research and provide advice to decision makers on marine ecosystems, including impacts of environmental stressors on migratory birds, species at risk and ecological risks associated with specific high-priority ocean activities. (DFO, EC)

Demanding Performance

4.5.5. Make demonstrable progress in protecting ecologically significant marine areas. (DFO)

4.5.6. Make demonstrable progress on a yearly basis towards establishing national marine conservation areas in two unrepresented regions. (PC)

Target 4.6: Invasive Alien Species
By 2020, pathways of invasive alien species introductions are identified, and risk-based intervention or management plans are in place for priority pathways and species.
(Minister of the Environment)

Indicators:

- Number of known new invasive alien species in Canada, by federal regulatory status
- Percent of federally regulated foreign invasive alien species not established in Canada

Implementation Strategies

Leading by Example

4.6.1. Coordinate the federal government's response to the 2004 Invasive Alien Species Strategy for Canada. Implementation is the responsibility of federal science-based and regulatory departments and agencies. (EC)

4.6.2. Implement activities and strategic objectives with a focus on preventing and limiting new invasive species from entering Canada so that entry and the domestic spread of invasive plants and plant pests is managed and response to invasive plants and plant pests is planned and implemented. (CFIA)

Enabling Capacity

4.6.3. Help governments, agencies and industry manage risks to natural resource sectors, infrastructure and human health by providing scientific knowledge on forest disturbances, including pests. (NRCan)

4.6.4. Decision makers and legislative authorities have science information and tools to manage aquatic invasive species domestically and internationally. (DFO)

4.6.5. Implement conventions and guidelines of the International Maritime Organization relating to reducing the risk of aquatic species invasions into domestic regulations. (TC)

4.6.6. Implement the vessel-related invasive species provisions of the 2012 Great Lakes Water Quality Agreement through policy, regulations, research and enforcement actions. (TC)

4.6.7. Develop and implement a risk analysis framework (i.e., risk assessment, risk management and risk communication) and a pathways approach in regulating invasive alien species in Canada so that entry and the domestic spread of invasive plants and plant pests is managed and response to invasive plants and plant pests is planned and implemented. (CFIA)

Advancing Knowledge and Communication

4.6.8. Engage in partnerships with provincial governments, industry, and stakeholders in responding to invasive species within Canada in order to increase stakeholder and partner cooperation, stakeholder and partner awareness of plants and plant pests, and compliance with policies and regulations. (CFIA)

Demanding Performance

4.6.9. Cooperate with U.S. and international regulators to inspect vessels to ensure compliance with Canadian regulations. (CFIA, TC)

4.6.10. Prevent the introduction and rapid dispersal of invasive species and disease into Canada via land, air and marine ports of entry, thus reducing potential deleterious effects to ecosystems, economies and society. (CBSA, CFIA)

4.6.11. Foster international, national and provincial collaborative arrangements and partnerships with industry to prevent and limit the introduction of invasive species entering Canada. This will increase stakeholder and partner cooperation, stakeholder and partner awareness of plants and plant pests, and compliance with policies and regulations. This will also increase international engagement, cooperation and awareness of invasive species and compliance with policies and regulations, ensuring that international standards and processes reflect Canadian interests. (CFIA)

Targets to Protect Canadians and their Environment

Target 4.7: Environmental Disasters, Incidents and Emergencies
Environmental disasters, incidents and emergencies are prevented or their impacts mitigated.
(Minister of Public Safety and Minister of the Environment)

Indicators:

- Percentage of federal institutions evaluated that have assessed and taken actions in their emergency management plan to address risks related to their area of responsibility
- Number of environmental emergencies at facilities subject to environmental emergency regulations

Implementation Strategies

Leading by Example

4.7.1. Evaluate, validate and/or identify improvements to the Government of Canada's emergency management plans, procedures and protocols. (PS)

4.7.2. Reinforce the partnerships for national disaster mitigation, while managing the increased costs of disaster recovery. (PS)

4.7.3. Analyze and evaluate federal institutions' emergency management plans to assess if the institutions are identifying risks in their area of responsibility and are developing plans to mitigate the identified risks. (PS)

Advancing Knowledge and Communication

4.7.4. In accordance with mandated responsibilities, provide environmental and/or other information to reduce the risk of, and advice in response to, the occurrence of events such as polluting incidents, wildlife disease events or severe weather and other significant hydro-meteorological events as applicable. (AAFC, AANDC, DFO, EC, HC, IC, NRCan, PC, PS, PWGSC, TC)

Specific examples include:

- Develop spill and dispersion models, analysis methods, fate and behaviour algorithms, measurement and remote sensing capabilities, decontamination protocols, and countermeasures used during incidents. (EC)
- Reduce the environmental consequences of spills by providing scientific and technical advice on weather, sea state and the behaviour and effects of chemicals, sampling and analysis, countermeasures, sensitivity mapping, trajectory, modelling, and operation of the 24/7 National Environmental Emergencies Centre in Montreal. (EC)
- Strengthen federal preparedness and response capabilities to radiological and nuclear emergencies by working with federal, provincial and international partners on joint planning, drills and exercises. (HC)
- Facilitate the restoration and maintenance of telecommunications services during an emergency situation by providing situational awareness and federal representation of the telecommunications stakeholders' interests in efforts such as fuel prioritization, credentialing, public communications, international assistance, and the movement of resources. (IC)
- Work with the telecommunications sector to ensure the telecommunications needs of first responders are met and to enhance the repair and restoration of affected networks. In times of emergency, the short term capability to facilitate the rapid repair, replacement and expansion of telecommunications systems is Industry Canada's highest priority. (IC)
- Ensure other levels of government, private sector and professional organizations involved in emergency management in Canada have access to accurate hazard information and hazard mitigation knowledge products for decision making (e.g. in the event of landslides, tsunamis, and radiological and nuclear incidents). (NRCan)
- Provide equipment and human resources to assist in the response to environmental emergencies. (PC)
- Improve situation awareness, information sharing, risk assessment, national level planning and whole-of-government coordinated response to events that affect the national interest through the operation of the Government Operations Centre. (PS)
- In accordance with its transport-related mandated responsibilities, Transport Canada oversees regulatory programs and provides advice related to: preventing incidents; ensuring preparedness and response to incidents; and determining liabilities arising from incidents. Examples of actions include the operation of the 24/7 Canadian Transport Emergency Centre (CANUTEC) and provision of aerial surveillance of marine incidents (National Aerial Surveillance Program (NASP)). (TC)

Demanding Performance

4.7.5. Prevent emergencies by promoting compliance, track and report number of environmental emergency plans in place as required by *Environmental Emergency Regulations*, created pursuant to section 200 of the *Canadian Environmental Protection Act, 1999*. (EC)

4.7.6. Strengthen pipeline safety as part of the government's plan for Responsible Resource Development by undertaking aggressive measures to increase oil and gas pipeline inspections by 50%, doubling the number of comprehensive audits of pipelines, and implementing monetary penalties for pipeline safety violations. (NEB, NRCan)

Target 4.8: Chemicals Management
Reduce risks to Canadians and impacts on the environment and human health posed by releases of harmful substances.
(Minister of the Environment and Minister of Health)

Indicators[3]:

- Reduce releases of harmful substances[4] (mercury, cadmium, lead, and isoprene) to the environment
- Reduce concentrations of harmful substances in the environment
  - In 80% of drainage regions where Canadian or Federal Environmental Quality Guidelines are not exceeded for selected substances (PBDE in fish and sediment 2014-15, PFOS in water and fish 2013-14, BPA targets to be confirmed)
- Reduce levels of human exposure to harmful substances

Implementation Strategies

Leading by Example

4.8.1. Implement the Federal Contaminated Sites Action Plan and complete remediation and risk management activities at known high priority federal contaminated sites. (AAFC, AANDC, CSC, DFO, DND, EC, NRC, PC, PWGSC, RCMP, TC)

4.8.2. Guidance and program policies developed by the Federal Contaminated Sites Action Plan program secretariat and the expert support departments are provided to federal custodians for program implementation activities. (DFO, EC, HC, PWGSC)

Enabling Capacity

4.8.3. Percentage of stated objectives to be achieved in international negotiations which were met or mostly met under the Basel, Rotterdam, Stockholm and Vienna Conventions. (EC)

3 Due to the long term nature of the Chemical Management Plan (CMP) and the range of substances being addressed, it is not possible to indicate quantitative progress toward Target 4.8 within the time frame of FSDS 2013-16. Approaches for reporting progress will continue to evolve over the duration of the CMP as trends are identified.

4 Note that the target for hexavalent chromium has been achieved and therefore is not listed as a part of this indicator.

4.8.4. Continue to co-operate with partners across Canada to implement the Computers for Schools program to divert electronic equipment from landfills thus protecting nature, preventing water pollution and providing economic and social benefits to Canadians. (IC)

Advancing Knowledge and Communication

4.8.5. Assess 100% of 1500 targeted existing commercial substances as identified under the Chemicals Management Plan for risks to human health and/or the environment by 2016. (EC, HC)

4.8.6. Track releases of harmful substances under the National Pollutant Release Inventory in accordance with the *Canadian Environmental Protection Act, 1999.* (EC)

4.8.7. The Northern Contaminants Program will continue monitoring contaminant levels in wildlife and people in the Canadian North. (AANDC)

Demanding Performance

4.8.8. Address 100% of new substances, for which Environment Canada has been notified by industry of their intended manufacture or import, to determine if they may pose risks to human health and/or the environment within the timelines in the regulation or established services standards. (EC, HC)

4.8.9. Ensure at least one risk management measure is in place for 100% of substances deemed to be harmful to human health and/or the environment. (EC, HC)

4.8.10. Deliver compliance promotion activities for key regulatory initiatives. (EC)

4.8.11. Prevent unacceptable risk to people and the environment through the regulation of pesticides by initiating 100% of the re-assessments of registered pesticide products identified in the Re-evaluation Initiation Schedule. (HC)

4.8.12. Administer the *Fisheries Act* Pollution Prevention Provisions (FA-PPP) including the development of risk management instruments. (EC)

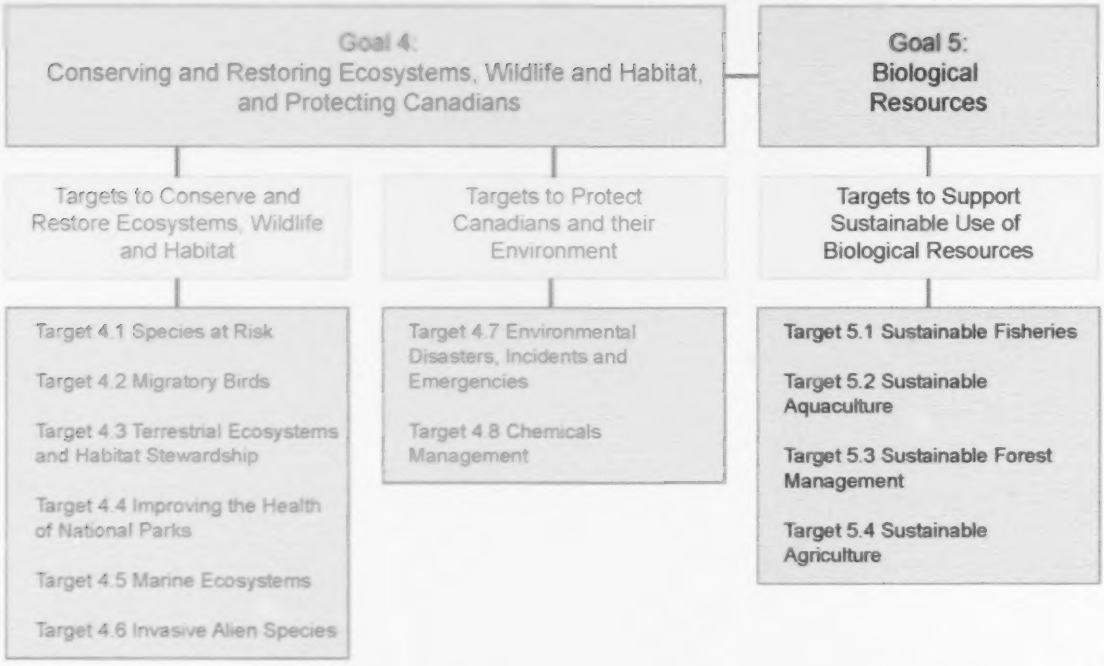
Goal 5: Biological Resources – Efficient economic and ecological use of resources – Production and consumption of biological resources are sustainable.

Indicators:

- Status of major fish stocks
- Annual harvest of timber relative to the level of harvest deemed to be sustainable (Allowable Annual Cut (AAC))[5]

5 Provinces are responsible for the management of forests. The federal government collates and analyzes the data provided by provinces and making it available to the public.

Figure 12 – Goal 5: Biological Resources


Goal 4:
Conserving and Restoring Ecosystems, Wildlife and Habitat, and Protecting Canadians
Goal 5:
Biological Resources
Targets to Conserve and Restore Ecosystems, Wildlife and Habitat
Targets to Protect Canadians and their Environment
Targets to Support Sustainable Use of Biological Resources
Target 4.1 Species at Risk
Target 4.2 Migratory Birds
Target 4.3 Terrestrial Ecosystems and Habitat Stewardship
Target 4.4 Improving the Health of National Parks
Target 4.5 Marine Ecosystems
Target 4.6 Invasive Alien Species
Target 4.7 Environmental Disasters, Incidents and Emergencies
Target 4.8 Chemicals Management
Target 5.1 Sustainable Fisheries
Target 5.2 Sustainable Aquaculture
Target 5.3 Sustainable Forest Management
Target 5.4 Sustainable Agriculture

To achieve this goal, the Government of Canada will:

- Continue to promote the sustainable use of biological resources by means such as preparing science-based management plans for wild fish stocks and developing and disseminating knowledge to promote the sustainable management of Canada's forest ecosystems.
- Conduct research to better understand Canadian bioresources and conserve their genetic diversity. Understanding Canadian bioresources and protecting and conserving their genetic diversity is a key research priority of Agriculture and Agri-Food Canada. Notably, Agriculture and Agri-Food Canada maintains the National Biological Collections, which include the Canadian National Collection of Insects, Arachnids and Nematodes; the National Mycological Herbarium; the Canadian Collection of Fungal Cultures; AAFC National Collection of Vascular Plants; Plant Gene Resources of Canada; and Canadian Animal Genetic Resources. The information contained in the Collections enables research by federal scientists and the broader scientific community that benefits areas such as economy and trade, food and agriculture, public health and safety, monitoring of invasive alien species and national security. The Collections are also the foundation for essential research and development activities to help the agricultural sector adapt to changes resulting from natural challenges, such as climate and pests.

Targets to Support Sustainable Use of Biological Resources

Target 5.1: Sustainable Fisheries
Improve the management and conservation of major stocks.
(Minister of Fisheries and Oceans)

Indicator:

- Percentage of major fish stocks where the harvest rate is at or below approved levels (e.g. removal reference, quota)

Implementation Strategies

Enabling Capacity

5.1.1. Deliver an integrated fisheries program that is credible, science-based, affordable, effective and contributes to sustainable wealth for Canadians. (DFO)

Advancing Knowledge and Communication

5.1.2. Undertake research to improve understanding of marine ecosystems. (DFO)

5.1.3. Increase knowledge of fisheries resources, their productivity and the ecosystem factors affecting them. (DFO)

Target 5.2: Sustainable Aquaculture
By 2020, all aquaculture in Canada is managed under a science-based regime that promotes the sustainable use of aquatic resources (including marine, freshwater, and land based) in ways that conserve biodiversity.
(Minister of Fisheries and Oceans)

Indicator:

- Aquaculture under a science framework: The extent to which aquaculture is managed under a science-based environmental regulatory framework

Implementation Strategies

Enabling Capacity

5.2.1. Deliver an efficient federal-provincial aquaculture regulatory management regime that is developed consistent with regulatory best practices. (DFO)

Advancing Knowledge and Communication

5.2.2. Develop and release reporting to Canadians on aquaculture sustainability. (DFO)

Demanding Performance

5.2.3. Increase the science knowledge base needed to support informed ecosystem-based environmental regulation and decision making, especially that of regulatory-based programs such as Aquaculture Management. (DFO)

Target 5.3: Sustainable Forest Management
Contribute to the proposed national target that by 2020, continued progress is made on the sustainable management of Canada's forests.
(Minister of Natural Resources)

Indicator:

- Representation of the Canadian Forest Service on advisory boards or committees involving governments, industry and non-governmental organizations in order to provide scientific knowledge on forest ecosystems

Implementation Strategy

Advancing Knowledge and Communication

5.3.1. Provide scientific knowledge of Canada's forest ecosystems to industry and non-governmental organizations, with the view of enabling the establishment of practices to mitigate the environmental impact of natural resource development. (NRCan)

Target 5.4: Sustainable Agriculture
By 2020, agricultural working landscapes provide a stable or improved level of biodiversity and habitat capacity.
(Minister of Agriculture and Agri-Food Canada)

Indicators:

- Wildlife habitat capacity on farmland
- Environmental farm planning on agricultural land

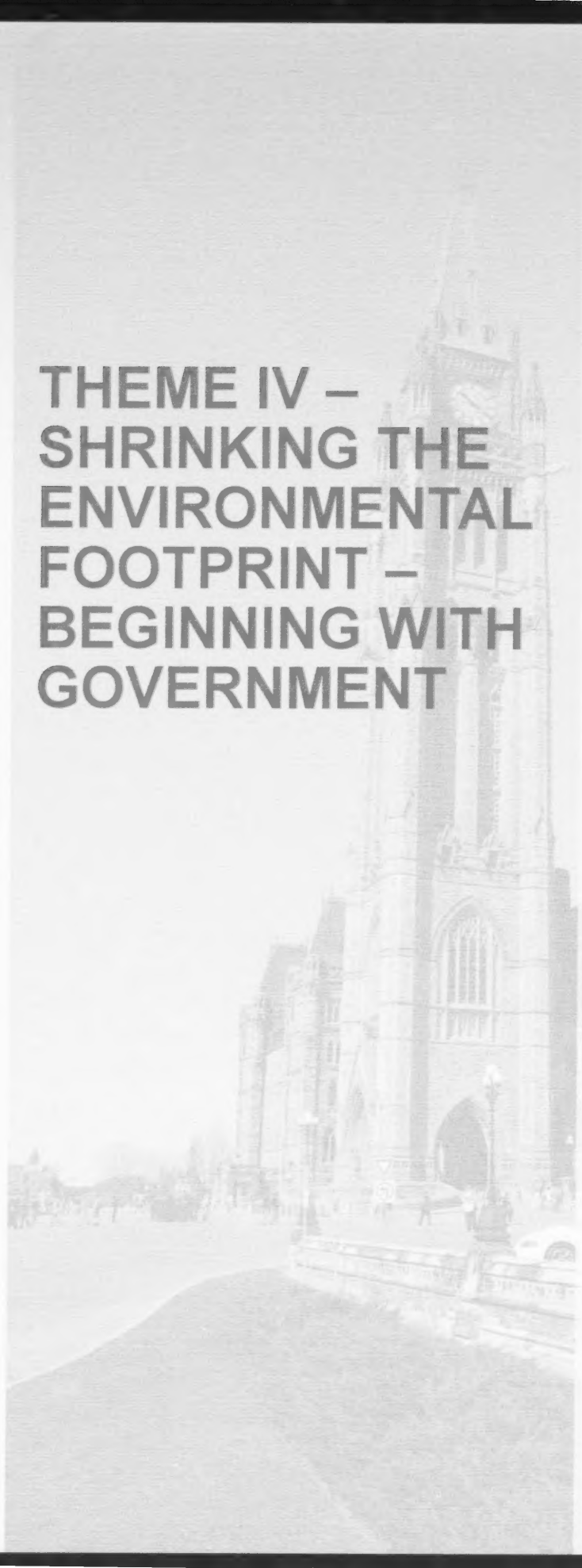
Implementation Strategies

Advancing Knowledge and Communication

5.4.1. Assess broad-scale trends in the capacity of the Canadian agricultural landscape to provide suitable habitat for populations of terrestrial vertebrates. (AAFC)

5.4.2. Increase the awareness and adoption of sustainable agriculture practices that maintain or improve the quality of soil, water, air and biodiversity at farm and landscape levels by increasing the number of farms with an Environmental Farm Plan through Growing Forward 2 programs delivered by provinces and territories. (AAFC)

THEME IV – SHRINKING THE ENVIRONMENTAL FOOTPRINT – BEGINNING WITH GOVERNMENT



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The first FSDS enabled the Government of Canada to make important strides in reducing the environmental footprint of federal government operations. It laid the groundwork to reduce environmental impacts in key operational areas such as real property management, fleet, procurement and general office operations. These actions have set a foundation upon which greening of government operations can advance.

The federal government is conscious that Canadians expect their government to manage its operations in an environmentally responsible manner.

Why It Matters

The federal government has an extensive operational presence with more than 28 000 buildings[6] owned or leased, more than 16 000 on-road vehicles, and upwards of 200 000 employees. The federal government also procures significant levels of goods and services annually. These operations, while modest on an economy-wide scale, result in the consumption of natural resources, the release of GHGs and the generation of waste. The federal government is conscious that Canadians expect their government to manage its operations in an environmentally responsible manner.

Sound stewardship of government assets is supported by greening of government operations. Our efforts in this area will lead to better use of resources, reduce the Government of Canada's environmental impacts and provide better value for money for Canadians. The greening of operations also aligns with the government's priority to streamline activities by leveraging efficiency opportunities.

Best Practices In Greening Operations

Governments in other jurisdictions, including the U.S., United Kingdom and Australia have also established a greening agenda. The majority of Canadian provinces and territories also have well-developed approaches to reducing their environmental footprint. Common trends and best practices show the adoption of government-wide goals and related targets are predominantly focused in these four key areas:

- Reducing greenhouse gas emissions;
- Reducing waste generated;
- Improving water efficiency; and
- Greening the supply chain (i.e. asset and materiel management).

For the Government of Canada, aligning greening initiatives with departmental operations is consistent with the government's priority to create efficiencies and potential cost savings, and embeds sustainability within government operations.

6 These buildings vary widely in size and purpose – from laboratories, sheds, lighthouses and hangars to office buildings and military bases.

Integrating sustainability initiatives within existing and planned initiatives, policies, and programs ensures that environmental implications are considered in day-to-day operations and decision making. For the Government of Canada, aligning greening initiatives with departmental operations is consistent with the government's priority to create efficiencies and potential cost savings, and embeds sustainability within government operations.

What the Federal Government Is Doing

Figure 13 – Theme IV: Shrinking the Environmental Footprint – Beginning with Government

Goal 6: Greenhouse Gas (GHG) Emissions and Energy
Goal 7: Waste and Asset Management
Goal 8: Water Management
Target 6.1 GHG Emissions Reduction
Target 7.1 Real Property Environmental Performance
Target 7.2 Green Procurement
Target 7.3 Sustainable Workplace Operations
Target 7.4 Greening Services to Clients
Target 8.1 Water Management

Aligning with international best practices, the previous Theme IV goal "Minimizing the environmental footprint of government operations" has been separated into three goals: Greenhouse Gas Emission (GHG) and Energy, Asset and Waste Management, and Water Management.

This revised goal structure is intended to provide a more comprehensive view of the Government of Canada's environmental footprint and the actions being taken to minimize it. The new structure will also help to prioritize efforts in areas of greatest opportunity including improving our asset management, generating less waste, reducing energy consumption and GHG emissions, and managing water sustainably.

This revised goal structure is intended to provide a more comprehensive view of the Government of Canada's environmental footprint and the actions being taken to minimize it.

Lessons learned during the implementation of the first FSDS contributed to developing the updated targets under each goal. The updated FSDS intends to optimize the way in which departments conduct their operations, to minimize the Government of Canada's environmental footprint in the short, medium and long term.

Goal 6: GHG Emissions and Energy – Reduce the carbon footprint and energy consumption of federal operations.

Indicator:

- Government-wide GHG emission reductions from buildings and fleets relative to fiscal year 2005–2006, expressed as a percentage

Figure 14 – Goal 6: Greenhouse Gas Emissions and Energy

Goal 6: Greenhouse Gas (GHG) Emissions and Energy
Goal 7: Waste and Asset Management
Goal 8: Water Management
Target 6.1 GHG Emissions Reduction
Target 7.1 Real Property Environmental Performance
Target 7.2 Green Procurement
Target 7.3 Sustainable Workplace Operations
Target 7.4 Greening Services to Clients
Target 8.1 Water Management

Reducing absolute GHG emissions generated by federal facilities and fleets remains the core focus of this goal. The government has in place a GHG tracking protocol based on internationally accepted principles, a solid reporting framework and departmental GHG reduction plans. This strengthened capacity will help the government implement the target under this goal in this FSDS.

To achieve this goal, the Government of Canada will:

- Continue to take action to reduce levels of GHG emissions from its operations to match the national target of 17% below 2005 levels by 2020.

Target 6.1: GHG Emissions Reduction
The Government of Canada will reduce greenhouse gas emissions from its buildings and fleets by 17% below 2005 levels by 2020.

Indicator:

- Departmental GHG emission reductions from buildings and fleets relative to fiscal year 2005-06, expressed as a percentage

Implementation Strategies

6.1.1. Each department will report annually on GHG emissions inventories using the Federal Greenhouse Gas Tracking Protocol – a Common Standard for Federal Operations and submit results to PWGSC.

6.1.2. By March 31, 2015, each department will update its implementation plan to reduce GHG emission levels in absolute terms from 2005 levels and put them on a clear downward trend. Elements of the plan will address:

6.1.2.1. Scope of departmental GHG inventory including exclusions to be applied;

6.1.2.2. Approach to GHG emissions reduction being taken for buildings and/or fleets.

Goal 7: Waste and Asset Management – Reduce waste generated and minimize the environmental impacts of assets throughout their life-cycle.

Indicators:

- Number of real property projects and existing buildings achieving a high level of environmental performance (cumulative since the 2011–2012 Departmental Performance Reports)
- Number and percentage of FSDS departments that have established three SMART green procurement targets from the identified commodity categories
- Number and percentage of FSDS departments that have developed an approach to maintain and improve the sustainability of workplace policies and practices

Figure 15 – Goal 7: Waste and Asset Management

Goal 6: Greenhouse Gas (GHG) Emissions and Energy
Goal 7: Waste and Asset Management
Goal 8: Water Management
Target 6.1 GHG Emissions Reduction
Target 7.1 Real Property Environmental Performance
Target 7.2 Green Procurement
Target 7.3 Sustainable Workplace Operations
Target 7.4 Greening Services to Clients
Target 8.1 Water Management

Two core elements are encompassed in this goal: managing federal assets using a life-cycle approach, and environmentally sound waste management. A life-cycle asset management approach incorporating the planning, acquisition, use and maintenance, and disposal phases aims to minimize environmental impacts of operations. Ensuring environmentally sound waste management focuses on reducing the quantities of waste generated and on increasing waste diversion through reuse and recycling options. A broad range of government operations are included such as the management of buildings, fleet, office furniture and equipment, and other goods required to provide services to Canadians.

To achieve this goal, the Government of Canada will:

- Achieve an industry-recognized level of high environmental performance in real property projects and operations.

- Continue to embed environmental considerations into public procurement.
- Adopt policies and practices to improve the sustainability of its workplace operations.
- Reduce the environmental impact of services to clients.

Target 7.1: Real Property Environmental Performance
As of April 1, 2014, and pursuant to departmental Real Property Sustainability Frameworks, an industry recognized level of high environmental performance will be achieved in Government of Canada real property projects and operations.

Indicators:

- Total number of existing Crown-owned buildings (over 1000 m^2) and new lease or lease renewal projects (over 1000 m^2) where the Crown is the major lessee, assessed for environmental performance using an industry-recognized assessment tool, and associated floor space (m^2)
- Total number of existing Crown-owned buildings, new construction, build-to-lease projects, major renovations projects, achieving an industry-recognized level of high environmental performance, and associated floor space (m^2)
- Number of fit-up and refit projects achieving an industry-recognized level of high environmental performance

Implementation Strategies

7.1.1. By March 31, 2015, each department will update as appropriate, their Real Property Sustainability Framework to define the custodian's approach to managing the environmental performance of new construction, build-to-lease projects, major renovations, operation and maintenance of existing Crown-owned buildings, and new lease or lease renewal projects over 1000 m^2. Key elements of the Real Property Sustainability Framework will address the scope of application and commitments to[7]:

7.1.1.1. Achieve a level of performance that meets or exceeds the custodian's current commitment(s) to sustainable buildings using industry-recognized assessment and verification tool(s).

7.1.1.2. Conduct life-cycle assessments for major construction and renovation projects using an industry recognized tool.

7.1.1.3. Develop plans to address environmental performance assessment recommendations for existing Crown-owned buildings.

7.1.1.4. Manage the collection, diversion and disposal of workplace waste in Crown-owned buildings in an environmentally responsible manner.

7.1.1.5. Manage construction, renovation and demolition waste in Crown-owned buildings in an environmentally responsible manner.

7 Departments are able to state which elements will be addressed using their Real Property Sustainability Framework (RPSF). This would include details on the assessment tools chosen (e.g. LEED, BOMA etc.) including the performance level to be achieved, and the actions proposed in the areas selected. Similarly, the departmental RPSF will include thresholds which define the scope of application such as: building type, project dollar value, floor area, geographic location and the availability of resources.

7.1.1.6. Develop an approach to improve performance of Crown-owned buildings via automation and commissioning.

7.1.1.7. Develop an approach to building operator training in Crown-owned buildings.

7.1.1.8. Integrate the use of sustainable real property performance management indicators into the investment decision-making process for Crown-owned assets in the building portfolio (e.g. density, energy intensity, facility condition, etc.).

7.1.1.9. Benchmark and report annually on the energy usage intensity of Crown-owned office buildings using an industry recognized tool.

Best Practice

7.1.2. Real property managers and functional heads responsible for new construction, leases or existing building operations will have clauses related to environmental considerations incorporated into their performance evaluations.

Target 7.2: Green Procurement
As of April 1, 2014, the Government of Canada will continue to take action to embed environmental considerations into public procurement, in accordance with the federal Policy on Green Procurement.

Indicators:

- Number and percentage of specialists in procurement and/or materiel management who have completed the Canada School of Public Service Green Procurement course or equivalent, in the given fiscal year
- Number and percentage of managers and functional heads of procurement and materiel whose performance evaluation includes support and contribution towards green procurement, in the given fiscal year

Implementation Strategies

7.2.1. As of April 1, 2014, each department will implement a green procurement approach that furthers the implementation of the Policy on Green Procurement. Each department will develop an approach to:

7.2.1.1. Integrate environmental considerations into procurement management processes and controls.

7.2.1.2. Train procurement and materiel management functional specialists on green procurement.

7.2.1.3. Include the contribution and support of the Policy on Green Procurement objectives in performance evaluations of managers and functional heads of procurement and materiel.

7.2.1.4. Set a minimum of three SMART targets to reduce the environmental impact of purchases (from a suite of predefined choices in identified categories of goods and services).

7.2.1.5. Leverage common use procurement instruments where available and feasible.

7.2.2. Incorporate environmental considerations into procurement instruments. (PWGSC)

Best Practices

7.2.3. Train acquisition cardholders on green procurement.

7.2.4. Increase awareness of the *Policy on Green Procurement* among managers.

Target 7.3: Sustainable Workplace Operations
As of April 1, 2015, the Government of Canada will update and adopt policies and practices to improve the sustainability of its workplace operations.

Indicator:

- Existence of departmental approach to maintain or improve the sustainability of workplace policies and practices

Implementation Strategies

7.3.1. By March 31, 2015, each department will develop an approach to maintain or improve the sustainability of the departmental workplace. Key elements of the approach will address the scope of application and commitments to[8]:

7.3.1.1. Engage employees in greening government operations practices.

7.3.1.2. Integrate environmental considerations into corporate policies, processes and practices in accordance with departmental refresh cycles.

7.3.1.3. Maintain or improve existing approaches to sustainable workplace practices (i.e. printer ratios, paper usage, and green meetings).

7.3.1.4. Minimize the ratio of information technology (IT) assets per employee.

7.3.1.5. Select and operate IT and office equipment in a manner that reduces energy consumption and material usage.

7.3.1.6. Dispose of e-waste in an environmentally sound and secure manner.

7.3.1.7. Reuse or recycle workplace materiel and assets in an environmentally sound and secure manner.

8 Departments are able to state which elements will be addressed using the strategy and comments section of the Greening Government Operations (GGO) table within the departmental Reports on Plans and Priorities (RPP). This would include details on the actions planned in the areas selected. Similarly, the departmental RPP will include thresholds which define the scope of application such as: scope of control, availability of supporting programs, geographic location and the availability of resources.

7.3.1.8. Minimize all non-hazardous solid waste generated and leverage service offerings to maximize the diversion of waste.

7.3.1.9. Increase the population density in office buildings and space utilization in special purpose buildings.

7.3.1.10. Maintain or improve sustainable fleet management.

Target 7.4 (Optional): Greening Services to Clients
By March 31, 2015, departments will establish SMART targets to reduce the environmental impact of their services to clients.

Indicator:

- To be identified by each department

Implementation Strategy

Best Practice

7.4.1. Conduct an analysis of client services and implement practices to reduce their environmental impact.

Goal 8: Water Management – Improve water management in federal operations.

Indicator:

- Number and percentage of custodial departments that have included an approach to improve water management in their Departmental Real Property Sustainability Framework

Figure 16 – Goal 8: Water Management

Goal 6: Greenhouse Gas (GHG) Emissions and Energy
Goal 7: Waste and Asset Management
Goal 8: Water Management
Target 6.1 GHG Emissions Reduction
Target 7.1 Real Property Environmental Performance
Target 7.2 Green Procurement
Target 7.3 Sustainable Workplace Operations
Target 7.4 Greening Services to Clients
Target 8.1 Water Management

This goal focuses on sustainable water management within federal operations and represents the government's operational contribution to global priorities of water quality and availability. Custodial departments are required to outline their approaches to implementing water conservation and management measures, and are encouraged to take steps to improve data availability related to potable water consumption.

To achieve this goal, the Government of Canada will:

- Improve water management within its real property portfolio.

Target 8.1: Water Management
As of April 1, 2014, the Government of Canada will take further action to improve water management within its real property portfolio.

Indicators:

- Existence of an approach to improving water management in departmental Real Property Sustainability Framework
- Amount and percentage of floor space of new Crown-owned construction and major renovation projects that includes water metering, in the given fiscal year

Implementation Strategies

8.1.1. By March 31, 2015, each department will update, as appropriate, the Real Property Sustainability Framework to define the custodian's approach to sustainable water management in Crown-owned assets. Key elements of the approach will address the scope of application and commitments to[9]:

8.1.1.1. Conserve potable water.

8.1.1.2. Manage storm water run-off.

8.1.1.3. Improve the metering of water utility usage for existing Crown-owned buildings.

8.1.1.4. Meter the water usage in new projects.

Best Practices

8.1.2. Conduct potable water audits in Crown-owned assets.

8.1.3. Analyze the water consumption data collected to determine steps to improve water management in Crown-owned assets.

8.1.4. Reclaimed non-potable water is used for landscape irrigation.

9 Departments are able to state which elements will be addressed using their Real Property Sustainability Framework (RPSF). This would include details on the actions planned in the areas selected. Similarly, the departmental RPSF will include thresholds which define the scope of application such as: scope of control, availability of supporting programs, geographic location, building type, project dollar value, geographic location and the availability of resources.

CONCLUSION

The 2013-16 FSDS continues the approach to federal sustainable development planning and reporting that began with the introduction of the *Federal Sustainable Development Act* and the 2010-13 FSDS. In doing so, it advances the government's long-term commitment to make environmental decision making more transparent and accountable to Parliament.

The second cycle builds on three key improvements made by Canada's first FSDS, compared with previous federal sustainable development approaches:

1. An integrated, whole-of-government picture of actions and results to achieve environmental sustainability;
2. A link between sustainable development planning and reporting and the government's core planning and reporting processes; and
3. Effective measurement, monitoring and reporting in order to track and report on progress to Canadians.

Within each theme, progress has been made through, for example, adding a new target on climate change adaptation, and including a broader range of relevant activities and responsible departments. Goals, targets and implementation strategies have also been updated to reflect current federal programming.

The second cycle advances these improvements by ensuring that a broader range of federal actions are included, continuing efforts to align FSDS activities with departmental planning and reporting (notably, by aligning departments' FSDS commitments with their respective Program Alignment Architectures), and expanding the suite of indicators used to measure progress. It also responds to comments and input from stakeholders by, for example, improving targets and implementation strategies to make them more specific, measurable, and achievable; improving coverage of environmental issues; and better integrating the social and economic dimensions of sustainable development.

The second cycle maintains the first cycle's basic structure, including four priority themes: Addressing Climate Change and Air Quality, Maintaining Water Quality and Availability, Protecting Nature and Canadians, and Shrinking the Environmental Footprint – Beginning with Government. Within each theme, progress has been made through, for example, adding a new target on climate change adaptation, and including a broader range of relevant activities and responsible departments. Goals, targets and implementation strategies have also been updated to reflect current federal programming.

Changes evident in the second cycle represent the initial results of the FSDS "Plan, Do, Check, Improve" model of performance management. The flexibility and transparency of the FSDS approach, combined with a clear vision of what the strategy can and should achieve, will continue to drive future improvements.

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Annex 1

Responsibility for Greening Government Operations Targets by Department/Agency

Departments and Agencies	Goal: Greenhouse Gas Emissions and Energy		Goal: Waste and Asset Management				Goal: Water Management
	Target 6.1 GHG Emissions from Buildings and Fleet	Target 6.1 GHG Emissions from Fleet Only	Target 7.1 Real Property Environmental Performance	Target 7.2 Green Procurement	Target 7.3 Sustainable Workplace Operations	Target 7.4 Greening Services to Clients (optional)	Target 8.1 Water Management
Aboriginal Affairs and Northern Development		X	X	X	X	X	X
Agriculture and Agri-Food	X		X	X	X	X	X
Atlantic Canada Opportunities				X	X	X	
Canada Border Services	X		X	X	X	X	X
Canada Revenue		X		X	X	X	
Canadian Heritage			X	X	X	X	X
Citizenship and Immigration		X		X	X	X	
Economic Development for the Region of Quebec				X	X	X	
Employment and Social Development		X		X	X	X	
Environment	X		X	X	X	X	X
Finance				X	X	X	
Fisheries and Oceans	X		X	X	X	X	X
Foreign Affairs, Trade and Development				X	X	X	
Health		X	X	X	X	X	X
Industry		X	X	X	X	X	X
Justice				X	X	X	
National Defence	X		X	X	X	X	X
Natural Resources	X		X	X	X	X	X
Parks	X		X	X	X	X	X
Public Health			X	X	X	X	X
Public Safety and Emergency Preparedness				X	X	X	
Public Works and Government Services	X		X	X	X	X	X
Transport	X		X	X	X	X	X
Treasury Board Secretariat				X	X	X	
Veterans Affairs			X	X	X	X	X
Western Economic Diversification				X	X	X	
Total applicable	9	6	15	26	26	26	15

Annex 2
List of Departments

The following departments and agencies are required to table sustainable development strategies under the *Federal Sustainable Development Act*:

1. Atlantic Canada Opportunities Agency
2. Canada Border Services Agency
3. Canada Revenue Agency
4. Department of Aboriginal Affairs and Northern Development*
5. Department of Agriculture and Agri-Food
6. Department of Canadian Heritage
7. Department of Citizenship and Immigration
8. Department of Employment and Social Development**
9. Department of the Environment
10. Department of Finance
11. Department of Fisheries and Oceans
12. Department of Foreign Affairs, Trade and Development†
13. Department of Health
14. Department of Industry
15. Department of Justice
16. Department of National Defence
17. Department of Natural Resources
18. Department of Public Safety and Emergency Preparedness
19. Department of Public Works and Government Services
20. Department of Transport
21. Department of Veterans Affairs
22. Economic Development Agency of Canada for the Regions of Quebec
23. Parks Canada Agency
24. Public Health Agency of Canada
25. Treasury Board of Canada Secretariat
26. Western Economic Diversification Canada

* The Department of Aboriginal Affairs and Northern Development was previously known as Indian and Northern Affairs Canada.

** The Department of Employment and Social Development was previously known as Human Resources and Skills Development Canada.

† In 2013 the Department of Foreign Affairs and International Trade and the Canadian International Development Agency were amalgamated to form the Department of Foreign Affairs, Trade and Development.

While not bound by the *Federal Sustainable Development Act*, the following organizations have contributed implementation strategies to the 2013-16 Federal Sustainable Development Strategy:

1. Canadian Food Inspection Agency
2. Correctional Service of Canada
3. National Energy Board
4. National Research Council
5. Royal Canadian Mounted Police
6. Standards Council of Canada
7. Statistics Canada

Annex 3
List of Abbreviations

The following abbreviations appear in the body of the Federal Sustainable Development Strategy (FSDS), and are also presented here for convenience:

BOMA: Building Owners and Managers Association
CAA: Clean Air Agenda
CESD: Commissioner of the Environment and Sustainable Development
CESI: Canadian Environmental Sustainability Indicators
CSR: Corporate social responsibility
DSDS: Departmental Sustainable Development Strategy
FSDS: Federal Sustainable Development Strategy
GDP: Gross domestic product
GHG: Greenhouse gas
IT: Information technology
LEED: Leadership in Energy and Environmental Design
NCP: National Conservation Plan
NO_2: Nitrogen dioxide
PBDE: Polybrominated diphenyl ethers
PFOS: Perfluorooctane sulfonate
$PM_{2.5}$: Fine particulate matter
RENEW: National Recovery Program
RPP: Report on Plans and Priorities
RPSF: Real Property Sustainability Framework
SDAC: Sustainable Development Advisory Council
SMART: Specific, measurable, achievable, relevant, time-bound
SO_2: Sulphur dioxide
UN: United Nations
UNCBD: United Nations Convention on Biological Diversity
UNFCCC: United Nations Framework Convention on Climate Change
VOC: Volatile organic compound

The following abbreviations are used to indicate federal organizations that lead, or share the accountability for, specific implementation strategies:

AAFC: Agriculture and Agri-Food Canada
AANDC: Aboriginal Affairs and Northern Development Canada
ACOA: Atlantic Canada Opportunities Agency
CBSA: Canada Border Services Agency

CED: Canada Economic Development for Quebec Regions

CFIA: Canadian Food Inspection Agency

CSC: Correctional Service of Canada

DFATD: Department of Foreign Affairs, Trade and Development

DFO: Department of Fisheries and Oceans

DND: Department of National Defence

EC: Environment Canada

FIN: Finance Canada

HC: Health Canada

IC: Industry Canada

NEB: National Energy Board

NRC: National Research Council

NRCan: Natural Resources Canada

PC: Parks Canada

PHAC: Public Health Agency of Canada

PS: Public Safety Canada

PWGSC: Public Works and Government Services Canada

RCMP: Royal Canadian Mounted Police

SCC: Standards Council of Canada

StatCan: Statistics Canada

TC: Transport Canada

WD: Western Economic Diversification

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